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Special Feature:
Economic Forecast for 1984

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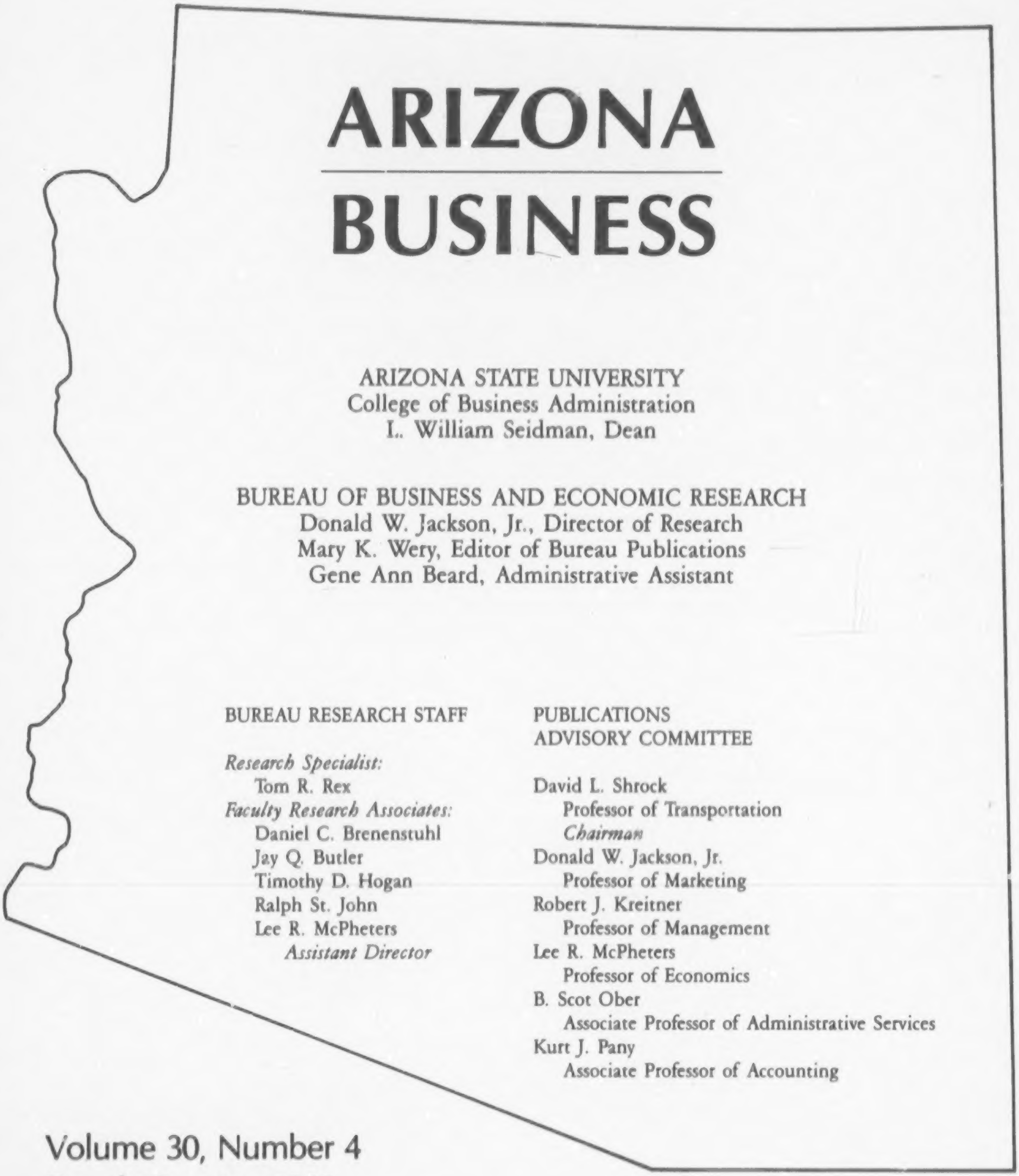

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Report to the Reader

A "hale and hearty" national economy was forecast for 1984 by the creator and editor of *Blue Chip Economic Indicators* during the twenty-second annual Economic Forecast Luncheon held December 7, 1983, at the Phoenix Hilton.

Robert J. Eggert was the keynote speaker at the conference presented by the ASU Department of Economics and the Center for Executive Development in cosponsorship with Valley National Bank. Using data submitted by a panel of more than 40 economists nationwide, Eggert predicted a 5.3 percent increase in the nation's Gross National Product in 1984, a 9.4 percent rise in personal income, a 9.3 percent jump in industrial production, and a 25 percent increase in corporate profits.

Other forecasters who spoke at the luncheon included Dr. William J. Boyes, Chair of the ASU Economics Department; Dr. Richard D. Winkelman, Associate Professor of Economics at ASU; Elliott Pollack, Vice President and Manager, Economic Planning Division, Valley National Bank of Arizona; and Dr. Harold Fearon, National Association of Purchasing Management Professor of Management at Arizona State University. The texts of the forecast speeches are presented in this issue of *Arizona Business*.

The speakers agreed that 1984 holds the promise of a strong economy. Interest rates remain a big question mark, however, and the federal deficit and overvalued dollar cast a shadow over an otherwise bright picture.

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Adjusting to Recovery

WILLIAM J. BOYES

During the past twenty years in general and the decade of the 1970s in particular, managers became accustomed to living with inflation. Planning on price increases and hedging against the costs of price increases has made sense. Yet, when the 1980–82 recession came, it was a failure to adjust to a lower rate of inflation that exacerbated the downturn in the economy. The purpose of this economic forecast is to provide some information that will help people to be aware of changes and pertinent economic events and thus develop appropriate strategies.

The philosopher George Santayana's admonition not to forget the past seems particularly relevant when discussing the current progress of the U.S. economy. Approximately ten months ago most forecasters were predicting something near a 2 percent growth (real GNP) for 1983. Last year's local economic forecast suggested that 5 percent was definitely a possibility. In reality, the recovery has proceeded at a rate of near 6 percent for the first three quarters of 1983. This should not have been a substantial surprise. The average rate of growth of the first three quarters after the trough of each of the recessions has been more than 7 percent. Hence, a 5 percent rate was a conservative forecast for the recovery.

Much of the pessimistic outlook of last year can be attributed to interest rates. The fear was that if interest rates did not fall back to "normal" levels, a recovery could not take place. With $200 billion deficits staring us in the face, it was felt there was no way that interest rates could fall. In economic terms, the deficit would crowd out the private sector. In recent months interest rates have begun to climb, and several economic observers have become bearish with respect to the future of the recovery. Should they be? To provide some basis for answering these questions it is appropriate to look briefly at what has occurred in previous recoveries as far as the pattern of interest rates, money growth and spending are concerned.

Looking at the pattern of interest rates for the recoveries of 1954, 1958, 1961, 1971, 1975, and 1980 one finds some interesting similarities. On average, short-term interest rates fell in the first three months of the recovery while long-term rates changed very little. Hence, the spread (long-term minus short-term) typically widened during the first three months. During the next three months short-term rates rose fairly substantially—144 basis points on average from the trough of the previous recession. Long-term rates rose only slightly, 44 basis points, while the spread necessarily narrowed. After one year, short-term and long-term rates have risen even further (although in 1975 and 1980 they had fallen slightly). The current recession is consistent with this pattern. Dating the trough as of November 1982, short-term rates fell during the first three months of the recovery by 210 basis points, only slightly less

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Interest rates, the federal deficit, and public confidence are all factors in sustaining the economic recovery that took place in 1983. Nevertheless, the outlook is bright for 1984. This report was one of the presentations at the twenty-second annual Economic Forecast Luncheon held December 7, 1983.

William J. Boyes is Professor of Economics and Chair of the Economics Department, College of Business Administration, Arizona State University.

than the mean of 220 basis points of all other recoveries. During the second three months the short-term rate rose by about 190 basis points, again consistent with the postwar pattern of recoveries. Hence, the recent rise in interest rates should not have surprised us. Similarly, a slow rise for the next three to six months should not be a surprise.

The current recovery does differ from previous ones—not in the pattern of interest rates but in the level of rates. The 210 basis point decline in short-term interest rates during the first three months was only a 2.6 percent decline. The average decline of previous recessions was more than 10 percent. While basis point changes are approximately the same, the high base of the current period means a much smaller percentage change than in previous recoveries. Had the short-term rate fallen the average 10 percent rather than 2.6 percent, the short-term rate would have declined by nearly 600 basis points —mortgage rates would now be near 8.5 percent rather than 14 percent.

What is keeping interest rates high? There are only two possible answers, and these are closely related: One, the expectation of a resurgence of inflation; and two, the expectation of continued high deficits. Do the $200 billion deficits necessarily mean a rapid growth of the money supply and thereby a resurgence of inflation? Not necessarily, but most likely yes. These deficits could be financed without too much of a strain on the financial markets; $200 billion today is no more than $20 billion a few years ago. The $200 billion will take some 35 to 75 percent of all loanable funds. At 35 percent the negative impact is not much different than it has been over the past two decades. At 75 percent it is bad enough to squelch the recovery. Yet, it is likely that the fear that high interest rates will squelch the recovery will force the Federal Reserve to more than accommodate the deficits. If we're lucky, this will not re-ignite inflation for another year.

Money supply growth during the previous six recoveries tended to follow a common pattern. During the first three months after the trough of the recession, seasonally the growth rate of M-1, seasonally adjusted at an annual rate, averaged near 4.5 percent and continued fairly steadily for the following three months. In July 1980, this pattern did not follow. A 13.9 percent rate during the first three months was abruptly cut off in the 3 to 6 month period in which virtually no growth took place. Similarly, the recent recovery has experienced more than a 14 percent rate of growth, seasonally adjusted at an annual rate during the first three months but with very little slowing during the second three months. Given the current high level of interest rates, the Federal Reserve is under a great deal of pressure not to tighten the growth too much.

The high interest rates during this recovery have altered the economic pattern. It is more costly to purchase a home, to undertake the construction of a new building, or to dig a new oil well than it has ever been at similar times of a recovery. Yet, relative to a year or eighteen months ago, the interest cost is substantially less and pent-up demand has surfaced. Housing starts spurted ahead this year at a very rapid pace. The question is whether the demand will continue. The answer depends largely on expectations. If individuals are optimistic about their job positions and pessimistic about the pattern of interest rates, the housing market should continue improving. Unemployment will continue decreasing. The very rapid drop in the unemployment rate, both nationally and in Arizona, is due as much to the pick-up in demand as it is to the substitution of labor for other types of inputs. Labor does not cost as much to finance these days as does new capital—new machines. Businesses, finding inventories very costly to finance, have kept inventory build-ups at record low levels. The economy might then be able to experience another inventory accumulation growth spurt in the coming months.

In short, there is enough evidence to suspect that the current recovery will continue until the beginning of 1985. The profit picture should improve; corporate profits should increase approximately 25 percent during 1984. The stock market should resume its upward movement and the real estate market here in the Valley should again move upward. The catch to all this is the effect of those $200 billion deficits the Congress has failed to reduce. At 5 to 7 percent of GNP, they are at the highest level in U.S. History, and as long as they remain this high, interest rates will remain high.

National Forecast: Mini-boom for 1984

ROBERT J. EGGERT

Following the strong recovery year of 1983, a very good growth year is expected in 1984, with strong economic conditions extending into 1985. This forecast is the consensus of a panel of 44 economists polled by Eggert Economic Enterprises, Inc.

The panel estimates a 3.4 percent increase in real gross national product for 1983, leading into a mini-boom for 1984 with a 5.4 percent increase in real GNP.

Inflation, which has moderated dramatically during 1983, is expected to rise slightly. Measured by the GNP Deflator, the Blue Chip Consensus expects 1983 to show a 4.3 percent increase, with a 4.9 percent increase forecast for 1984.

Consumer prices are expected to rise 5.1 percent in 1984, compared to the modest 3.4 percent rise estimated for 1983.

Unemployment for 1983 was estimated to be approximately 9.6 percent for the year, but the latest statistics show it to be approximately 8.4 percent. For 1984, the consensus forecasts unemployment at 8.5 percent, considerably better than the 10.8 percent in December 1982.

Industrial production, which was estimated to show a 6.3 percent rise for 1983, is forecast to jump 9.3 percent in 1984.

Housing has been a big factor in the economy. Housing starts took a large jump during 1983—from slightly more than 1 million in 1982 to an estimated 1.71 million in 1983—an approximate increase of 60 percent during the year. That percentage, however, is measured from an abnormally low level. The 1984 forecast is 1.75 million housing starts, which is not a big change because the real increase has already occurred in that industry.

Automobile sales, which normally lag behind housing starts, are estimated to be 9.2 million for 1983, with a jump to 10.4 million or higher in 1984. A big year is coming for the auto industry.

Corporate profits in general will see a sizable increase of 25 percent, although the percentage increase is based on a low 1983 base.

Expansionary Period

To determine how long the recovery will last, 30 previous expansionary periods were examined, dating back to 1919. The average length of the trough-to-peak period was 33 months, although the range extended from 106 months down to 10 months. Using the average as a forecast, the peak of recovery could be expected to occur sometime in the early part of 1986.

For 1985, the consensus forecasts a 3.5 percent increase in real GNP; the GNP Deflator up 5.8 percent; the Consumer Price Index up 5.9 percent; and Unemployment down to 7.7 percent.

The Blue Chip Consensus represents the opinions of more than forty leading economists who are polled for their forecasts of economic activity. The results suggest a very good year in 1984 for the United States, with strong prospects for 1985 as well. This article was adapted and edited from remarks made at the Economic Forecast Luncheon on December 7, 1983.

Robert J. Eggert is President and Chief Economist of Eggert Economic Enterprises in Sedona, Arizona. Previously, he was Staff Vice President and Chief Economist with RCA for eight years and economic forecaster, market researcher and planner with the Ford Motor Company for 17 years.

Business is advised to take advantage of this expansionary period. This is the time for increases in inventories, expansion of capacity, and a strong advertising program.

Table 1 lists several favorable forces that will help support the recovery. Table 2 lists the unfavorable factors that will work against economic gains. Interest rates are of great concern and could rise if the Federal Reserve exercises upward pressure. The previous effort to control inflation rates, however, strangled the U.S. economy. It cured the malady, but the medicine was too severe. The expectation is that the Federal Reserve is now watching both the interest rate and the money supply closely. The overvalued dollar is another problem. It results in continued record trade deficits, causing people in the export business to suffer.

Nevertheless, the positive forces offset the unfavorable factors, and the overall result will be a good economic picture for 1984 that will continue into 1985.

Best Investments

With that kind of forecast, people think in terms of the best investments to make during economic expansion. Using the Salomon Brothers list of 14 types of investments, the panel rated stocks and bonds as the best investments for future profitability, both for one year and for five years ahead (see Table 3). In terms of market groups, the economists project that the pharmaceutical industry has the greatest potential for healthy performance during the next 12 months, with medical services and machine tools also strong.

With this mini-boom already 12 months old, the time is now for action in business and in investments. Optimism is the prevailing wind.

TABLE 1

FAVORABLE ECONOMIC FORCES FOR 1984

1. Inflation, interest rates, and wage settlements have declined sharply from year-ago levels.
2. Federal Reserve Board policy has become much less restrictive and will remain so with an election year coming up.
3. Inventories of finished goods are low in relation to sales and will have to be rebuilt.
4. Consumer installment credit has been substantially reduced. Much room for expansion exists in the use of credit cards.
5. Consumer confidence has moved up sharply from a near-record low level, reflecting the greater-than-expected drop in unemployment and the over $500 billion paper profits in higher stock prices.
6. Growing defense contracts are resulting in a move from planning board to production.
7. The U.S. highways are in great need of repair. Lower gasoline prices and the new user taxes provide the money and will be a stimulative factor.
8. There is a huge backlog of needs for new housing, new automobiles, and other durable goods.
9. As profits improve, recovery in business spending for plant and equipment is expected to explode in the year ahead.
10. One does not have to be a Keynesian economist to conclude that last July's tax cut and huge federal budget deficits will have an expansive impact.

Source: Eggert Economic Enterprises, Inc.

TABLE 2

UNFAVORABLE ECONOMIC FORCES FOR 1984

1. Interest rates may receive upward pressure from the Federal Reserve.
2. The federal deficit will remain at dangerously high levels.
3. An overvalued dollar results in continued record trade deficits.
4. World debt problems continue to be serious.
5. Upward movement in the actual inflation rate may renew stronger expectations.
6. Excess capacity could delay plant and equipment spending increases.
7. Other factors to be considered include growing protectionism, noncompetitive basic industries, lack of support for research and training.

Source: Eggert Economic Enterprises, Inc.; consensus view of 44 Blue Chip economists.

TABLE 3

BEST INVESTMENTS IN 1984

Rank For 1984	*Investment*	*Rating[1] (1 to 10 Scale)*	*Actual in 1983[2]*	
			Percent Return	*Rank**
1	Stocks	7.4	51.8	2
2	Bonds	6.8	39.0	3
3	Treasury Bills	6.1	10.8	6
4	Housing	5.7	2.1	8
5	Foreign Exchange	5.5	– 4.3	12
6	Farmland	4.9	– 5.7	13
7	Silver	4.5	109.5	1
8	Gold	4.1	28.6	4
9	U.S. Coins	4.0	16.8	5
10	Oil	3.7	– 14.7	15
11	Old Masters	3.7	1.7	9
12	Diamonds	3.6	0.0	10
13	U.S. Stamps	3.6	– 6.2	14
14	Chinese Ceramics	3.4	0.0	11

[1] Sample of 34 economists willing to render an opinion.

[2] Period ending June 1983, as compiled by Salomon Brothers, Inc., Investment Policy, Stock Research.

*CPI, used by Salomon, was ranked 7th in 1983.

Source: Blue Chip Economic Indicators, November 10, 1983, p. 8., Eggert Economic Enterprises, Inc.

The Arizona Economy: A Good Year in 1984

RICHARD D. WINKELMAN

Following the 1982 economic slowdown, 1983 proved to fulfill the promise of being a recovery year with steady or increased employment in most sectors, reduced inflation, and increased personal income. The bright year-end economic picture leads to the expectation of a strong economy in Arizona for 1984.

A brief review of the Arizona economy by major employment sectors serves as a background for the analysis and forecast of Arizona's key economic indicators. The employment data are provided by the Arizona Department of Economic Security.

Manufacturing

An appropriate starting place is the large and growing manufacturing sector with its great value added and a large portion of its output sold outside Arizona. As a consequence, employment in manufacturing closely parallels the national economy. The previous peak of employment in the manufacturing sector occurred in December 1981, at 159,000 employees. The employment decline began in January 1982, and continued month after month, until a low of 148,000 was reached in January-February of 1983. Since then there has been a steady rise, and manufacturing employment now equals the previous peak. A continual increase is expected in this sector during 1984.

Mining

A similar pattern can be seen in employment in the mining sector. Almost all the variation in employment is attributable to copper, since all but a fairly constant 3,000 mine workers are employed by the copper mines. The 3,000 employed in other mines and quarrying doesn't vary by more than a handful of workers from month to month. At the end of 1981, total employment in the mining sector stood near 25,000. The employment decline began in January 1982. The downward drift continued until strike activity this past summer reduced employment to less than 15,000 workers. Thus, over an eighteen-month period, employment in copper declined by some 10,000 workers.

The general economic recovery and the hiring of nonstriking workers has caused employment to rise slowly since August to about 16,000 at present. Obviously the mining sector was a major factor in the high unemployment rates in the first half of 1983.

The outlook is still not very good for the copper mines, but the continuing overall economic recovery will have some favorable impact. The presence of many low-cost producers around the world provides a formidable obstacle to the return of the "old days" in this venerable and storied sector of the Arizona economy.

All key economic indicators are showing positive signs of recovery with gains expected in most sectors. This report was one of the presentations at the twenty-second annual Economic Forecast Luncheon held December 7, 1983.

Richard D. Winkelman is Associate Professor of Economics in the College of Business Administration, Arizona State University.

Construction

The construction sector of the Arizona economy has followed a pattern very close to that of manufacturing and mining. The previous employment peak occurred in June 1981, at more than 70,000 workers. Since then construction employment declined steadily until fall, 1982, when employment averaged about 60,000. It jumped to 65,000 by December 1982 and has risen steadily since. In the fourth quarter of 1983, construction employment was averaging 77,000 workers. This growth in construction will continue in 1984 but at a slightly diminished rate. An important variable to watch, however, is the behavior of interest rates.

Transportation, Communication, and Public Utilities

Employment in the transportation, communication, and public utilities sector has averaged about 55,000 workers over the past two years with a variance of no more than a few hundred workers from one month to another. The only significant deviation occurred in August 1983, as a result of the Communication Workers of America strike against American Telephone and Telegraph. In general, this sector grows to meet the needs of the economy, therefore some gain will be realized in 1984.

Wholesale and Retail Trade

This is the largest of the employment sectors. In general, employment in this sector peaks during the Christmas season—approaching 270,000 for 1983—then declines reaching its low in the summer. The variation from December to July is on the order of 9,000 to 10,000 jobs. The decline after Christmas is initially mild as the influx of tourists helps to maintain employment until spring.

Services

The services sector behaves in similar fashion but with less variation from season to season. Peak employment occurs in the winter, and in early December stood at 225,000. This is expected to continue to rise through early 1984 and then decline to about 220,000 in the summer.

Finance, Insurance, and Real Estate

The financial services sector averages about 62,000 employees with little variation. This sector grows with the overall economy and can expect slight gains through 1984.

Government

The remaining major employment sector is government. Federal employment stands steady at slightly more than 38,000. The state and local sectors are subject to greater variation, particularly the public schools sector. Employment is about 20,000 less in the summer months. In general, though, employment in this sector is relatively stable. Total government employment in Arizona now stands at 208,000, making it the third largest employment sector in the state.

KEY INDICATORS

The key indicators of the Arizona economy, shown in Table 1, are personal income, population, the unemployment rate, nonagricultural wage and salary employment, the Metropolitan Phoenix Consumer Price Index, and Gross State Product.

Personal Income

Personal income rose sharply in 1983 to $31.5 billion, an 8 percent gain over 1982. Per capita income rose by 4.7 percent over the same period. While these large gains in current dollars are impressive, the more interesting tale lies in the real income growth that occurred. Using the Phoenix CPI as the deflator, real personal income rose by 5.9 percent over 1982. This compares with real growth of only 1.5 percent in 1982 over 1981.

On a per capita basis the growth in real income is even more impressive. Real per capita income increased by 2.8 percent in 1983 compared to the decline of 1.7 percent in 1982. On a personal income basis, Arizona has experienced a sharp recovery from the doldrums of 1982.

The growth experienced since the first quarter of 1983 should also prevail through 1984. As a result, total personal income in 1984 dollars is expected to reach $35.67 billion, a 13.5 percent gain over a resurgent 1983. In real terms, 1984 personal income is expected to grow by 7.1 percent.

On a per capita basis, 1984 personal income will rise by more than 10 percent in 1984 dollars with a strong 3.9 percent increase in real terms. Arizona residents can thus look forward to a second year of strong economic performance.

TABLE 1

THE ARIZONA ECONOMY: KEY INDICATORS

	A		C[a]		D[b]	
Key Indicators	1981 Realized	1982 Realized (B)	Percentage Change 1981 to 1982 (A to B)	1983 Estimated	Estimated Percentage Change 1982 to 1983 (B to C)	1984 Forecast	Forecasted Percentage Change 1983 to 1984 (C to D)

Key Indicators	A 1981 Realized	B 1982 Realized	Percentage Change 1981 to 1982 (A to B)	C[a] 1983 Estimated	Estimated Percentage Change 1982 to 1983 (B to C)	D[b] 1984 Forecast	Forecasted Percentage Change 1983 to 1984 (C to D)
Personal Income							
Total current dollars (000,000)	27,256	29,100	6.8	31,419	8.0	35,660	13.5
Per capita current dollars	9,748	10,100	3.6	10,518	4.7	11,654	10.2
Total 1977 dollars (000,000)	17,000	17,250	1.5	18,267	5.9	19,560	7.1
Per capita 1977 dollars	6,081	5,981	−1.7	6,150	2.8	6,392	3.9
Population (000)	2,797	2,884	3.1	2,970	3.0	3,060	3.0
Unemployment Rate (percentage)	6.5%	8.8%	5.2	9.0%	2.3	7.25%	
Metropolitan Phoenix CPI (1977 = 100)	160.3	168.7	−1.1	172.0	2.0	182.3	6.0
Nonagricultural Employment (000)	1,031	1,020	−1.9	1,030	1.0	1,100	5.0
Gross State Product		23,642		24,446	3.4	26,133	6.9

[a] Estimates based on the first three quarters of 1983. The forecast for 1984 was based on those estimates.

[b] December 1983.

Source: Developed by the author.

Population

Population in Arizona has grown annually by about 3 percent for the past several decades. This means that population will have risen to about 2,970,000 in 1983 and will exceed the three million mark—3,060,000—in 1984.

A resurgence in the birth rate might cause the growth rate to rise slightly higher over the next few years but that might be offset by declining inmigration as more and more of the Sun Belt area is competing for the movers. Migration is partially a function of relative economic opportunities. Since the current economic upswing is a good one, opportunities are more diverse. Therefore the 3 percent growth in population should be expected to hold for 1984.

Unemployment Rate

The unemployment rate in 1981 was stable near the monthly average of 6.2 percent. The cyclical increase in the unemployment rate began in December of 1981. The unemployment rate rose every month during 1982 and averaged 9.9 for the year. It topped out at 10.8 percent in February and March of 1983. The unemployment rate has declined steadily since March to the current rate of about 7.5 percent for an average rate of 9.5 percent for 1983. Given the economic performance anticipated in 1984, the unemployment rate is expected to average about 7.25 percent next year, ranging from a high of 8 percent in January to near 6 percent later in the year.

Wage and Salary Unemployment

In December 1981, wage and salary employment stood at 1,060,000. By June 1982, it had declined to 1,019,000, and by June 1983, had risen to 1,027,000. The current year-end level of employment is estimated to be 1,050,000.

The job outlook has brightened considerably since mid-year with current unemployment at about 7.5 percent with three full points shaved off the unemployment rates reported last spring. With the economic expansion in full bloom, wage and salary employment should expand considerably over 1984 hitting 1,100,000 jobs—an increase of 5 percent over 1983. Much of the increase in jobs will take place in manufacturing and construction with other sectors providing their share based on general economic growth in the state.

Metropolitan Phoenix CPI

The compilation of price data on a quarterly basis enables comparison of Phoenix to other metropolitan areas on what is usually called "cost of living." This is an ongoing project conducted by the Bureau of Business and Economic Research, an arm of the ASU College of Business Administration, and cosponsored by the Valley National Bank.

The impact of recession, recovery, and expansion can be seen clearly as the 1982 average annual rate of inflation was half of what it was in 1981, and from 1982 to 1983 it declined by two-thirds. Following the last big surge in the CPI in 1981, and from the fourth quarter 1981 to the first quarter of 1982, the quarterly indices for 1982 were steady except for the large decline from the third to fourth quarter. The net effect was a 5.3 percent increase. In 1983, the first quarter index was basically the same as for the fourth quarter of 1982.

Beginning in the second quarter, however, the process of economic recovery and some upward pressure on prices became evident as the quarterly index numbers increased. The overall impact has been for prices on an annual average basis to be about 2 percent higher in 1983 than they were in 1982; but a comparison of the fourth quarter of 1982 to the fourth quarter of 1983 shows a year-end to year-end increase in the Phoenix CPI of 5.5 percent.

The economic expansion is likely to continue to exert upward pressure on prices to the extent that the annual average CPI for 1984 will rise by approximately 6 percent over 1983.

Arizona Gross State Product

The final key indicator is Gross State Product. This is a measure of the value of output produced on a sector-by-sector basis and is calculated by applying the percentage of a given industry located in Arizona to the national value of output of that industry. These estimates are then summed across all industries. In 1981 Arizona real GSP increased 4.6 percent compared to GNP growth of 1.9 percent. During the recession year, 1982, Arizona's GSP grew by 0.4 percent while GNP declined 1.9 percent. For 1983, the estimate shows a rise in GNP of 3.3 percent while GSP rose 3.4 percent. For 1984 GSP is expected to outstrip GNP, 6.9 percent compared to 5.3 percent. This strong behavior by the Arizona economy reflects the simple fact that heavy smokestack industry is not a major portion of the Arizona economy and that high tech industries do play a major role. This strength is also, at least in part, a function of our population growth.

Summary

For 1984 the following changes are forecast:

Real personal income:	up 7.1 percent
Real per capita personal income:	up 3.9 percent
Population:	up 3.0 percent
Unemployment:	average 7.25 percent down from 1983
Metro Phoenix Consumer Price Index:	up 6 percent to 182.3
Wage and Salary Employment:	up 5 percent
Real Gross State Product:	up 6.9 percent

Economic Update:
Optimism for Consumers and Construction

ELLIOTT D. POLLACK

The current economic outlook is as bright as it has been at any time in the past five years with the business cycle now going from recovery to expansion. Consumer demand has picked up so much that inventory/sales ratios are near an all-time low. This means manufacturers will continue to increase production, which means more jobs, more overtime and more spending on plant and equipment. This will create more income, feed consumer confidence, fuel more spending, and will force manufacturers to increase production again, thereby causing more employment and continuing the cycle.

Under normal circumstances, this cycle would continue for perhaps another three years until consumers became overburdened with debt and inventory/sales ratios started to climb. Under normal circumstances, therefore, the forecast would suggest that things will look good for at least the next three years. Unfortunately, things are not normal. The major caveat in the outlook is that at some point a collision between monetary and fiscal policy could again force interest rates up to the point where recovery is choked off. This is something that is not likely for at least another year, so 1984 will be an excellent year for the economy.

Consumer Spending

The major area of current interest is consumer spending. It accounts for about two-thirds of all economic activity, and without an increase in consumer spending, the whole production cycle would not get started and the economy really would not go anywhere. The consumer area looks as good today as it has at any time in years—for several reasons.

First, the demographics are very strong. The postwar baby boom population is at an age where they would usually be large consumers of durable goods, vacations, and other consumer-type items.

Second, the three-year period of 1980 through 1982 was the longest period of economic malaise in post-World War II history. This suggests that there is a substantial amount of pent-up demand that has yet to be satisfied. People deferred purchases of autos, appliances, and certain home furnishings. That whole cycle is likely to reverse itself, and people who obviously have already started to spend are likely to continue to spend strongly.

Third, by most balance sheet and cash flow measures, American wage earners are in better financial shape than they have been in a long time. The average American during the period of economic malaise that ended in late 1982 took the opportunity to pay off a lot of debt,

The outlook for consumer spending in Phoenix is exceptionally bright going into 1984. Construction activity also appears strong with retail and commercial activity offsetting a slight decline in single-family housing.

Elliott Pollack is Vice President and Manager, Economic Planning Division, Valley National Bank of Arizona.

to accumulate financial assets, and to get the financial house in order. As a result, debt burdens are relatively low and the liquidity of the average consumer is relatively high. This suggests that the ability to spend is there.

Fourth, we have just had the last of the major tax cuts, perhaps the last for a long time. Nevertheless, it did add $29 billion to the spending stream, which has already started to show up and will continue to show up in the spending stream over the next year.

Finally, consumer confidence is near an all-time high nationally and, in Arizona, is at an all-time high. That confidence reflects not only a positive attitude about what is going on now but a positive attitude about what is likely to go on in the future.

Consumer Optimism

Consumer optimism about the current economic environment continues to improve. There has been a substantial improvement in attitudes regarding available jobs and local business conditions. In fact, consumer perceptions about local business conditions are greatly improved and now read over three to one favorable.

In looking ahead, consumers also remain quite optimistic with respect to their expectations regarding family income and job availability. In fact, both of these indices improved. On the other hand, despite positive attitudes toward the current state of local business conditions, attitudes are not quite as bright as they were three months ago. Consequently, the index of future expectations, although noticeably stronger than at the start of the year, improved less than feelings about the present situation.

Despite the fact that consumers seem somewhat reluctant to be boldly optimistic about the future, they are nevertheless optimistic. As a result, the Arizona consumer confidence index now stands at 198, up from 95 a year ago. Despite the fact that consumer confidence in both Phoenix and Tucson has been improving, the figures in Phoenix are markedly higher than in Tucson.

Overall, the gains in consumer confidence reflect not only a strong stock market and stronger liquidity on the part of the consumer but the general view that things are better for the consumer, that the boss is hiring instead of laying-off, that production is picking up, that overtime is increasing, and that things simply feel better.

Consumer Buying Plans

This higher consumer confidence has also been reflected in higher consumer buying plans. While not at a record high, they are nonetheless at a high plateau and have been since April. This suggests that Arizona retail sales, which have been strong this year— up over 11 percent for the first eight months of the year versus the similar 1982 period—should continue strong. Retail sales, adjusted for inflation, have picked up dramatically, suggesting that retail sales in 1984 will continue to be strong, perhaps up some 12 or 13 percent. This is good news for both retailers and consumers, and that is good news for the economy as a whole.

The only major constraint has to do with affordability. Interest rates are still very high by historic standards, thus making the monthly payments on purchases, such as autos and housing, considerably higher than they were coming out of the last recession. While the recovery will be strong, it will not be nearly as strong as it would have been had interest rates been at more normal levels.

Housing

In many places around the country, the affordability problem is causing people to downgrade the size of the house they buy, a logical step and similar to the downsizing that occurred in autos when gasoline prices created an affordability problem. According to information recently released by ASU, that isn't the case in the Phoenix market. Yet, it is clear that while the housing market is strong now, it is not nearly as strong as it otherwise might be. Simply put, too many people are still priced out of the housing market to allow it to be as buoyant as it was coming out of the 1975 business recession.

Nevertheless, the Phoenix market could be at or near a record for housing permits this year. All sectors are participating. Single-family housing for the first nine months of the year is up 98 percent, multifamily housing is up 145 percent, and the townhouse/condominium segment is up 130 percent. However, a look at the number of permits versus the number of units absorbed suggests that an excess of housing is developing, especially in the multifamily segment and even in the single-family segment. This clearly can't go on for very long. While an increase in population flows is expected in 1984, absorptions would have to pick up dramatically to mandate a repeat of the type of activity we had in 1983. Because this seems unlikely and because many apartments now being built may be largely a deferred reaction of the 1981 tax law changes, it seems likely that a modest slowdown in housing could occur in 1984. The slowdown could be mainly in the multifamily segment where vacancies now stand at 8 percent. There are still a substantial number of units that should cause that vacancy rate to increase in 1984.

While Pima County has also had a record year for housing in 1983, there is some excess of permits over absorptions since 1981. Overall, for the state as a whole, housing permits next year are expected to decline modestly compared to 1983. The F. W. Dodge numbers for construction awards are impressive for the first nine months of the year in Arizona: contract construction awards for residential are up 111 percent; nonresidential is down only 2.4 percent and in total up 85 percent. This is impressive because in this phase of the business cycle one would expect nonresidential construction to be substantially weaker than it has been.

Given the normal lags in the business cycle, it is likely that retail commercial and industrial construction will pick up in 1984, thus more than offsetting the decline expected in single-family housing. As a result, the value of contract construction awards is expected to continue to increase and employment should increase as well. Employment and construction should be up about 8 percent next year.

Overall, it looks like strengths in consumer and construction sectors of the economy are likely to continue through 1984. While construction won't be quite as buoyant as it was coming out of the 1973–75 recession, it will nonetheless be a continuation of the pleasant change we have had from the 1980–82 period.

A Survey of Arizona Business Conditions

HAROLD FEARON

SEPTEMBER

The Arizona economy continued to enjoy a surprisingly strong growth rate. All indicators of business activity were positive, with robust growth registered on the key measures of new orders received, purchases, production, and employment—each of which ran well ahead of the previous month. This was the eighth consecutive month in which all indicators flashed positive. The lengthening of vendor lead times reflects an expanding economy as firms attempt to satisfy demand and build inventories to a more comfortable level.

The purchasing business survey is in its twenty-first consecutive year of monthly reporting on the health of the Arizona economy. Data are gathered through a questionnaire sent at the close of each month to purchasing managers throughout the state, asking them to indicate the direction of activity—higher, unchanged, or lower—on seven key measures of economic activity in the month just ended. These purchasing managers deal daily with supply, demand, and price factors in the marketplace. Their aggregate readings have accurately charted the course of the current economy over the past two decades and have provided data on turning points several weeks earlier than comparable government data.

Prices paid for major purchased items continued to escalate, for the ninth consecutive month, and at a rate consistent with the previous month. Higher prices were paid by 39 percent of the firms; only 3 percent of the purchasing managers paid lower prices in September than in August; 58 percent said prices were unchanged. The price escalation started very slowly last January; the increase rate rose in March and April; it jumped up again in May and has been at essentially the same rate for the past five months. The underlying inflationary pressures persist but have not built up to anywhere near the severity experienced during the intense inflation years of 1977 to 1981. Arizona firms can look for gradual price increases during the fourth quarter and into 1984.

Delivery time on vendor shipments stretched out significantly in September for the eleventh month in a row, and at the highest increase rate in over four years since June of 1979. Longer delivery times were reported by 52 percent of the purchasing managers, ten times more than the 5 percent who enjoyed faster vendor deliveries. This is more positive proof of the strength of the expansion as vendors find it increasingly difficult to meet demand.

Inventory levels of purchased materials increased, for the eighth consecutive month, with 34 percent adding to stocks, twice the 17 percent who reduced inventories. Arizona firms have found that the inventory cuts during the 1982 recession brought stocks to a level too low to

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The November Purchasing Survey, the Review and Forecast, and the Monthly Change Index were presented by Dr. Harold Fearon as part of the twenty-second annual Economic Forecast Luncheon held December 7, 1983.

Dr. Fearon is The National Association of Purchasing Management Professor of Management in the College of Business Administration, Arizona State University.

support current, increased activity levels and now are attempting to boost inventory. The effort to restock is one of the prime factors fueling the expansion.

New orders received from customers advanced at a very strong rate in September. Fifty-six percent of the firms booked more new business in September than in August; only 8 percent saw orders shrink. This was the ninth consecutive jump in new orders and the largest one-month hike since March of 1972—more than eleven years ago. From a slow start last January, incoming order rates have grown rapidly, providing the underlying strength for the expansion.

TABLE 1

SEPTEMBER PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (September compared to August)		
Key Indicator	*Higher*	*Same*	*Lower*
Prices paid for major commodities	39	58	3
Delivery time from vendors	52	43	5
Purchased materials inventory level	34	49	17
New orders received	56	36	8
Production	51	37	12
Employment	39	51	10
Purchases	55	35	10

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona.

Production also went up sharply, following the new order trend, although at a somewhat lower rate. Higher production was achieved in 51 percent of the firms, compared to 12 percent who reduced output. Firms have not been able to raise output quite as rapidly as new orders are flowing in; additional production increases can be anticipated over the next several months.

Employment was up sharply in September, and at the highest monthly increase rate so far in this recovery and the highest in over four years (since May of 1979). Thirty-nine percent added to their work force, which was about four times greater than the 10 percent who pared payrolls. Most of the jobs lost during the recession now have been regained, and employment will remain healthy over the balance of the year and probably throughout 1984.

Purchases of materials and services by Arizona firms went up sharply, and at the highest monthly increase rate in the seven months since data have been collected on this indicator. Fifty-five percent of the firms stepped up their purchase commitments, compared to only 10 percent who cut back purchase dollars. With the pressure on higher production to meet the greater flow of new orders, purchase commitments will remain strong and continue to buoy up the economy.

Thus, the third quarter ended on a strongly positive note, with advances shown on all the business indicators. It is doubtful if the growth pace enjoyed in the second and third quarters can be maintained, but the current expansion is being built on a strong base and will continue to enjoy good advances in the fourth quarter and well into the new year.

OCTOBER

The upward momentum continued to drive the Arizona economy to higher levels of activity in October, according to results from the Purchasing Management Associations of Arizona. All indicators of business activity again were positive—the ninth consecutive month in which growth was recorded on all seven indicators—and the fourth quarter started out on a strong note. While the growth rate on several of the indicators was somewhat lower than in September, reflecting advances at a less hectic and more sustainable pace, Arizona continues to enjoy very solid economic growth.

Prices paid for major purchased items advanced again, for the tenth month in a row, but the rate of increase was smaller than in September. Higher prices were paid by 31 percent of the firms; only 5 percent paid lower prices in October than in September while 64 percent saw prices unchanged. The October increase was the smallest in the past six months, showing that Arizona is now enjoying the best of both worlds: an economy that is following a rapid growth trend, along with a degree of price stability that has been unusual in recent years. While prices will continue to inch up over the balance of the year, there is little likelihood that inflation will heat back up to the double-digit level anytime in the near future.

Delivery time on vendor shipments continued to stretch out even further, for the twelfth consecutive month, evidencing the demand pressures presently being put on the economy. Longer delivery times were reported by 46 percent of the purchasing managers, which was nine times the 5 percent who enjoyed faster

TABLE 2

OCTOBER PURCHASING SURVEY

Key Indicator	*Percent of Purchasing Managers Indicating Each Response (October compared to September)* Higher	Same	Lower
Prices paid for major commodities	31	64	5
Delivery time from vendors	46	49	5
Purchased materials inventory level	33	42	25
New orders received	48	37	15
Production	46	46	8
Employment	28	63	9
Purchases	55	30	15

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona.

vendor deliveries. The stretch-out in vendor deliveries began last November and has been building since, picking up speed in April and again in July.

Inventory of purchased materials increased again, but at only half the rate of September. This was the ninth consecutive increase, as 33 percent added to inventory, compared to the 26 percent of the firms who reduced stocks. The relatively slow build-up of inventories during this economic expansion evidently has been influenced in large part by difficulties in obtaining timely supply, as shown by the lengthening lead times. Further attempts to add to materials inventory, as required to meet higher production schedules, will add more strength to the current upswing.

New orders received from customers continued to advance at a strong rate, although somewhat lower than in September. Forty-eight percent of the firms booked more new business in October than in September, which was over three times the 15 percent who saw orders shrink. This was the tenth consecutive monthly jump in new orders, as the recovery continues to pick up speed.

Production again enjoyed a healthy increase, at the same rate as in the previous month, and for the tenth month in a row. Higher production was reported by 46 percent of the firms; only 8 percent cut output. With the strong incoming order rate, further production hikes will occur over the next several months.

Employment went up again in October, responding to the need to increase output. Twenty-eight percent of the firms added to their work force, compared to only 9 percent who pared payrolls. While the October increase rate was smaller than in September, it was the ninth consecutive jump.

Purchases of materials and services by Arizona firms continued to advance sharply to support the higher output levels. Increased purchase commitments were made by 55 percent of the firms; only 15 percent cut back purchases. The strong performance by this indicator is a good predictor of increasing economic growth over the next several quarters.

Arizona's fourth quarter economic performance is coming on strong. While the overall increase rate in October slowed somewhat from September, performance on all indicators continued strong, and the moderation in the inflation rate is a positive sign. The total increase rate in the fourth quarter may be somewhat less than that experienced in the third quarter, but it almost certainly will continue to reflect a vigorous expansion, leading to even better economic performance in the new year.

NOVEMBER

The Arizona economy continued to reach for new higher levels of activity in November, according to results from the monthly business survey of the Purchasing Management Associations of Arizona and Southern Arizona. All indicators of business activity again were positive, for the tenth month in a row. The current recovery now is in its eleventh month and a very strong fourth-quarter performance is assured. However, the growth rate on the key indicators of new orders received, production, and employment was somewhat lower than in October, which had shown a similar decline from September. As the recovery begins to mature, some moderation in growth is to be expected; this is a normal phase of the business cycle.

Prices paid for major purchased items recorded its eleventh consecutive monthly increase, and at the highest rate since the current recovery began last January. Higher prices were paid by 43 percent of the firms; only 2 percent paid lower prices in November than in October; while 55 percent saw prices unchanged. So far during this business upswing prices have been rather stable, but if the November performance is repeated over the next few months, it will signal that inflation is heating up.

Delivery time on vendor shipments continued to stretch out, and at about the same rate as in October.

This was the twelfth month in a row that Arizona purchasing managers reported an increase in vendor lead times, with 48 percent saying it took longer to get deliveries from vendors, which was close to ten times the 5 percent who enjoyed faster delivery service. The lengthening in lead times has occurred at a consistent rate over the past five months, signaling that business activity is growing, making it more difficult for vendors to keep up with deliveries.

TABLE 3

NOVEMBER PURCHASING SURVEY

Key Indicator	*Higher*	*Same*	*Lower*
	Percent of Purchasing Managers Indicating Each Response (November compared to October)		
Prices paid for major commodities	43	55	2
Delivery time from vendors	48	47	5
Purchased materials inventory level	30	49	21
New orders received	42	39	19
Production	37	48	15
Employment	26	65	9
Purchases	43	43	14

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona.

Inventory levels of purchased materials showed only a slight increase, with higher inventory reported by 30 percent of the firms, compared to the 21 percent who cut stocks. The November increase rate was the same as in October. These small inventory changes result from the difficulty of obtaining shipments from vendors, coupled with increases in production activity which consume the inventory about as fast as it is received. These relatively low inventory levels position the economy for further increases, as future attempts to add to stocks provide added stimulus.

New orders received from customers continued to increase at a healthy rate. Forty-two percent saw their order books grow at a faster rate in November than in October, which was twice as great as the 19 percent who saw their incoming orders decline. The November increase was smaller than in October and the smallest since last January, which may indicate that increases in business activity will be harder to come by in the new year as the business expansion matures.

Production followed the new order rate up, but the increase was the smallest since last January. November marked the eleventh consecutive monthly increase, with higher production reported by 37 percent of the firms and only 15 percent cutting back output.

Employment went up again in November to support the higher production levels. Twenty-six percent of the firms added to their work force, compared to the much smaller 9 percent who pared payrolls. This increase was the smallest in the last seven months (since last April), providing further evidence that the growth rate is moderating.

Purchases of materials and services by Arizona firms were increased, to provide for the higher production levels. Increased purchase commitments were made by 43 percent of the firms; only 14 percent cut back purchases. This is a good indicator of future growth in the economy.

Thus, Arizona's economy continues to perform at a very high level. The strong advances on all indicators show the underlying strength in the economy. While the growth rate has slowed somewhat, it probably can be sustained at the current rate for several months to come, assuring that Arizona will go into the new year with a running start.

REVIEW AND FORECAST

The Monthly Change Index (Table 4) is a means for analyzing the data from the monthly purchasing surveys. Generally, a negative or low number is bad; a positive or high number is good. The December 1982 figures were almost all negative and essentially marked the end of the recession. In January 1983, the indicators start to show signs of the recovery. Particularly significant is the + 7 change on new orders and the + 5 on the production indicator. By March, the recovery was in full swing with all indicators positive and continuing healthy throughout the year. As of November, while the economy was still growing and still very positive, the rate of growth appears to have diminished some from September and October.

For 1984, the growth rate will moderate further, but good increases will be seen throughout the year. Inflation will heat up toward the latter half of the year, and 1984 will be a year of substantial economic expansion.

TABLE 4
PURCHASING SURVEY
MONTHLY CHANGE INDEX[a]

	1982	*1983*										
	Dec	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*
Prices Paid	−5	+2	+1	+10	+20	+29	+34	+38	+35	+36	+26	+41
Delivery Time	+4	+1	+6	+14	+25	+28	+31	+38	+40	+47	+41	+43
Inventory Level	−40	−20	+2	+3	+7	+24	+9	+25	+9	+17	+8	+9
New Orders	−15	+7	+24	+33	+40	+45	+35	+44	+24	+48	+33	+23
Production	−17	+5	+31	+33	+38	+47	+37	+40	+24	+39	+38	+22
Employment	−21	−6	+13	+28	+16	+20	+26	+26	+21	+29	+19	+17
Purchases[b]				+38	+39	+42	+42	+43	+32	+45	+40	+29

[a] Percentage indicating "higher" minus percentage indicating "lower."

[b] Series started in March, 1983.

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona. Percentages developed by the author.

Arizona Business Scene

Inflation Slows

1912

The rate of inflation in the United States has dropped sharply in the past three years from the peak annual rate of 14.7 percent in early 1980 to a rate of only 2.4 percent in the summer, 1983. It is not surprising that the inflation rate has slowed because inflation virtually always declines during and immediately after a recession. Peak inflation rates are normally reached just after the start of a recession (a national recession began in January 1980). Inflation then drops throughout the recession and into the economic recovery, reaching its lowest rate from six to eighteen months after the end of the recession (the latest recession ended in November 1982).

Although this recent slowing of inflation was not unusual, the magnitude of the reduction was greater than had been anticipated. The 2.4 percent rate in the summer, 1983, was the lowest since the beginning of 1966. This is even more remarkable because the 14.7 percent peak in inflation in 1980 was the highest since just after World War II. The relatively low inflation in 1983 was a result of a number of factors: two recessions within two years, in 1980 and 1981–1982; the length and severity of the second recession; and federal government policies, such as the slowing of monetary growth before and during the latter recession.

The Historical Pattern of Inflation

Inflation is not a phenomenon new to the current generation. Periods of inflation have been common in the United States since the origins of the nation. Some periods of inflation have been severe: a 74 percent inflation rate was experienced during three years of the Civil War, and a rate of 97 percent in five years occurred during and after World War I. Inflation of this magnitude has not been approached in the last 60 years. Even in the late 1970s and early 1980s, when inflation exceeded 10 percent per year, the rate was not extraordinary.

The current lowering of inflation from these double-digit rates is not the same as an actual decline in the level of prices. Periods of lower prices (deflation) have been common throughout American history, alternating with periods of inflation. The last period of extended deflation occurred during the Great Depression of the 1930s when price levels were lower than those in 1800. In the last 50 years, however, prices have risen to a level approximately seven and one-half times higher than during the Great Depression. It has been 44 years since the last period of deflation, excluding an occasional year of less than 1 percent deflation, the last in 1955. This cycle of inflation far exceeds the previous record length of 19 years from 1902 to 1920.

It is unclear how this potential upsurge in inflation will affect various areas of the nation. Regional patterns of inflation have changed every few years so it is uncertain whether Arizona and the West Coast area will continue to enjoy the nation's lowest inflation rates in 1984 and beyond.

1982 Inflation

It is not likely that this country will experience deflation in the near future, but some metropolitan areas had an inflation rate near zero in 1982. In the Phoenix metropolitan area, the inflation rate for the year ending December 1982 was only 1.0 percent. Comparably low rates occurred in other western metropolitan areas (see Table 1): San Diego (0.1 percent), San Francisco (0.0 percent), and Los Angeles (1.1 percent). The Phoenix area had the third lowest inflation rate of 29 metropolitan areas.

The geographic pattern of inflation in 1982 was considerably different from that of recent years (see the Second Quarter, 1983, "Arizona Business Scene" for details). The Pacific region had the lowest inflation rates in 1982, while the area around the Great Lakes (East North-Central region) suffered from the highest inflation rates, despite depressed economic conditions and high unemployment.

TABLE 1

INFLATION IN CONSUMER PRICES

Region	*Percent Change, 12 Months Ending:* *December 1982*	*September 1983*
NORTHEAST	4.0	3.7
New England:		
Boston	3.9	2.7
Middle Atlantic:		
Buffalo	5.1	6.8
Northeast Pennsylvania	2.6	4.1
New York	5.2	4.1
Philadelphia	2.4	3.0
Pittsburgh	7.2	6.5
SOUTH		
South Atlantic:		
Atlanta	4.9	2.8
Baltimore	3.3	4.7
Miami	2.1	4.4
Washington, D.C.	3.9	3.7
West South Central:		
Dallas	2.8	3.8
Houston	5.1	1.7
NORTH CENTRAL		
East North Central:		
Chicago	7.0	3.1
Cincinnati	10.0	4.8
Cleveland	12.8	4.8
Detroit	5.1	1.5
Milwaukee	5.4	3.8
West North Central:		
Kansas City	6.3	5.7
Minneapolis	2.5	0.8
St. Louis	5.9	2.7
WEST		
Mountain:		
Denver	9.5	4.6
Phoenix	1.0	1.5
Pacific:		
Los Angeles	1.1	2.8
Portland	2.5	1.8
San Diego	0.1	4.5
San Francisco	0.0	0.6
Seattle	2.9	2.2
Anchorage	1.4	1.7
Honolulu	4.5	1.5
UNITED STATES AVERAGE:	3.9	2.9

Source: CPI Detailed Report, various issues, U.S. Department of Labor, Bureau of Labor Statistics; and Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank.

The national inflation rate slowed in 1982 to 3.9 percent from 8.9 percent in 1981 and 12.4 percent in 1980. This slowing of the overall rate was a product of lower inflation in each of the major categories of the Consumer Price Index (CPI): housing, food and beverages, and transportation. The inflation rate for apparel and upkeep also slowed, but the rate for medical care, entertainment, and other goods and services showed little improvement. The Phoenix area had the same pattern: housing costs rose 12.1 percent in 1981 but fell 1.8 percent in 1982; transportation costs inflated 9.8 percent in 1981 but deflated 0.4 percent in 1982; and inflation in food and beverages slowed from 6.4 percent in 1981 to 2.7 percent in 1982.

1983 Inflation

In most areas of the country, inflation rates in 1983 continued to decline slightly through the summer. At the end of the third quarter, the Phoenix area inflation rate was 1.5 percent and the national average was 2.9 percent. The regional pattern in 1983 is again somewhat different as inflation in the North Central region has dropped more sharply than in other regions.

This economic cycle's lowest inflation rates were reached during the summer, 1983. After recovery from a recession is firmly in place, inflation begins to accelerate. This rise in the inflation rate was already noticeable by autumn, 1983, both nationally and in the Phoenix area.

1984 and Beyond

The inflationary pattern has not been broken, as the 44-year cycle, without appreciable deflation, is continuing. Most people are optimistic that the level of inflation in the coming years will not reach that of the previous few years. Most economic forecasts of inflation echo this optimism, expecting inflation not to exceed 6 percent through 1985. Recently, however, a growing number of economists have taken exception to these forecasts, looking for higher inflation rates by late 1984. Two federal government policies have been cited most often as the cause of this potential resurgence: continuing very large federal deficits and rapid increases in the money supply in late 1982 and early 1983. There is a high correlation, with approximately a two-year lag, between growth in money supply and inflation.

Arizona Construction Activity: Third Quarter, 1983

JAY Q. BUTLER

Led by reduced homebuilding, Arizona construction activity slowed during the third quarter of 1983. Although permit activity was down from the second quarter, it still was well above the level of a year ago. Thus, the slowdown is not generally viewed as a prelude to decline but, rather, suggests a more sustainable level of activity relative to consumer demand, interest rates, and economic recovery.

Total dollar value for the third quarter was down 7 percent from the second quarter ($979 million to $906 million), while the total number of recorded permits was down 20 percent (31,442 permits to 25,156 permits). In comparison to a year ago, however, there was a 57 percent increase in total dollar value ($576 million to $906 million) and a 37 percent increase in the total number of permits (18,280 permits to 25,156 permits). A similar pattern occurred in Maricopa County as shown in the quarterly building permit and new housing starts tables at the end of this report. Specific areas of construction activity are presented in Table 1.

Jay Q. Butler is Associate Professor of Real Estate in the College of Business Administration, Arizona State University. He also serves as a faculty research associate in the ASU Bureau of Business and Economic Research and is Director of the Arizona Real Estate Institute.

SECTORAL ACTIVITY

Residential Sector

Maricopa County. The single-family sector has been the fastest growing sector of construction activity, with a total of 16,410 permits for the first three quarters of 1983, in contrast to only 8,276 permits for the same period of 1982. However, third quarter activity declined in comparison to the second quarter, going from 6,670 permits, valued at $325 million, to 5,070 permits worth $283 million. The decline was most appreciable early in the quarter, in response to increasing interest rates, with 1,911 permits in July; 1,631 permits in August; and 1,528 permits in September.

The decreased activity is not of great concern because interest rates declined late in the third quarter and because observers had felt that the level of activity achieved during the second quarter was not sustainable given the basic concern of housing affordability. Sales activity continued to strengthen, especially in the resale market. The upward movement in the median price is in response to inflation and increased sales activity in the higher priced home market.

Rest of Arizona. Housing activity in Pima County produced a pattern very similar to that in Maricopa County. For the first three quarters of 1983, 3,553 single-family permits were issued, in comparison to only

TABLE 1

KEY SECTOR CONSTRUCTION ACTIVITY

(Third Quarter 1983, Second Quarter 1983, and Third Quarter 1982)

	SINGLE-FAMILY		*APARTMENTS*[a]		*OFFICE BUILDINGS*[b]		*RETAIL STORES*[c]		*INDUSTRIAL*	
	Number of Permits	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
MARICOPA COUNTY										
Third Quarter, 1983	5,070	283,202,525	403	115,003,638	91	49,392,803	173	31,923,716	135	24,729,681
Second Quarter, 1983	6,670	325,482,709	403	140,029,283	59	27,080,694	124	23,980,172	90	20,089,026
Third Quarter, 1982	2,971	123,115,862	241	67,013,796	54	33,935,915	69	9,710,201	90	14,373,222
PIMA COUNTY										
Third Quarter, 1983	1,110	62,072,491	27	48,243,033	16	14,183,614	16	5,426,240	5	1,303,900
Second Quarter, 1983	1,307	69,660,397	22	39,392,814	31	13,076,762	22	8,419,584	4	1,376,000
Third Quarter, 1982	707	36,382,309	19	20,000,177	17	4,315,930	12	3,142,055	1	225,000
REST OF ARIZONA										
Third Quarter, 1983	1,489	62,174,401	6	1,758,439	33	2,497,769	75	8,466,181	43	12,436,955
Second Quarter, 1983	1,622	69,858,948	31	11,472,261	34	2,887,876	60	3,370,072	28	1,578,241
Third Quarter, 1982	1,036	38,845,420	7	3,414,975	24	1,151,915	57	7,109,512	22	1,698,222
ARIZONA TOTAL										
Third Quarter, 1983	7,669	407,449,417	436	165,005,310	140	66,074,186	264	45,816,137	183	38,470,536
Second Quarter, 1983	9,599	465,002,054	456	190,894,358	124	43,045,320	210	37,438,253	122	23,043,567
Third Quarter, 1982	4,714	198,343,591	267	90,428,948	95	39,403,760	138	19,961,768	113	16,296,444

[a] Five or more housing units.

[b] Office, bank, medical and professional buildings.

[c] Shopping centers and other mercantile buildings.

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

1,732 permits for the same period of 1982. Mobile home activity continued at a high level with 544 permits, which is down from the 781 permits of the second quarter but above the 454 permits of a year ago.

Although single-family activity in the nonmetropolitan counties declined from 1,622 permits for the second quarter to 1,489 permits, housing activity is well above a year ago when 3,001 permits were recorded in comparison to the 5,151 permits for this year. Significant areas of single-family activity were Sierra Vista (87 permits), Flagstaff (147 permits), and the unincorporated areas of Coconino (140 permits), Navajo (133 permits), and Yavapai counties (252 permits). Mobile home activity exceeded single-family in the following counties: Graham (6 house permits to 33 mobile home permits), Mohave (174 house permits to 240 mobile home permits), Pinal (97 house permits to 155 mobile home permits), and Yuma (98 house permits to 122 mobile home permits).

Commercial Sector

Maricopa County. Historically, the single-family sector is the dominant force in a real estate recovery. In the current recovery, the apartment sector has played a very important role. So far in 1983, 1,070 permits have been issued in comparison to 788 permits for the entire record year of 1982.

Even with the record level of activity, the metropolitan vacancy rate followed the seasonal cycle by declining from 11 percent in the second quarter to 8 percent in the third quarter. Much of the decline can be attributed to the basic factors of the returning college student and winter resident. Supporting factors are the improving economy, which allows for increased inmigration, and new household formation (marriages and young adults going out on their own).

Construction activity of duplexes and 3–4 family units continued to increase in Mesa and Phoenix. In

Mesa, there has been a gradual shift from duplex construction to the 3-4 family project. Given the increased activity in the single-family and apartment sectors, some questions have arisen concerning the future strength of the smaller complex market.

Office building activity increased appreciably, with 91 permits worth $49 million, in contrast to the second quarter (59 permits at $27 million) and one year ago (54 permits at $34 million). The most active areas were Phoenix (54 permits at $27 million), Scottsdale (9 permits at $11 million), Glendale (12 permits at $5 million), and Mesa (10 permits at $4 million). One major change from earlier markets is that the office building projects tend to be larger; hence, they bring more square footage on the market at one time. Several market reports have noted an increasing vacancy rate in response to the increased construction and the slow economy. However, a rapidly improving economy will allow firms to satisfy their office needs, and most analysts are expecting the vacancy rate to decline during 1984.

Because consumer spending is increasing and new housing areas are being created, the retail sector posted a strong quarter of activity. In the third quarter, 173 permits were issued worth, $32 million, compared to 124 permits at $24 million and only 69 permits at $10 million for a year ago. Retail firms are going after very specific markets and are using smaller stores, which will result in smaller centers than those constructed in the past.

Rest of Arizona. Apartment development continued to improve in Pima County, with 27 permits valued at $48 million, which is well above the 19 permits worth $20 million recorded a year ago. In the office building market, the number of permits declined from 31 permits in the second quarter to 16 permits in the third quarter, but dollar value increased from $13 million to $14 million for the same period of time. Retail activity declined from 22 permits ($8 million) to 16 permits ($5 million).

In the nonmetropolitan counties, apartment development declined from 31 permits in the second quarter ($11 million) to 6 permits ($2 million) in the third quarter. The retail sector posted a strong increase over the second quarter, moving from 60 permits ($3 million) to 75 permits ($8 million).

Industrial Sector

The industrial sector has been gradually improving throughout the year. For the third quarter, 135 permits worth $25 million were issued in contrast to 90 permits ($20 million) for the second quarter. Much of the industrial activity appears to be more in remodeling or expanding existing structures than in building new ones. The primary areas of activity continued to be Tempe (93 permits at $13 million), Phoenix (23 permits worth $5 million), Mesa (7 permits valued at $3 million) and Scottsdale (3 permits at $3,000).

Pima County reported a stable level of activity, with 5 permits worth $1 million, which is similar to levels of activity reported in previous quarters. Industrial activity increased in the non-metropolitan counties, moving from 28 permits ($2 million) in the second quarter to 43 permits worth $12 million in the third quarter. Most of this industrial activity occurred in Casa Grande, with 3 permits valued at $10 million.

LOOKING AHEAD

Led by the single-family and apartment sectors, the Arizona construction industry has exceeded all expectations for 1983. Based on three totals of quarters, 1983 could well be a record housing year, especially in Maricopa County. Unlike previous housing recoveries, the apartment sector has been the real driving force. Because most analysts expect the apartment sector to slow while the single-family sector remains about the same, 1984 is expected to show some decreases; but, fundamentally, it should also be a good housing year.

The key question that has and will continue to loom over the housing market is the expected level and volatility of interest rates. During 1983, homebuilders were able to overcome relatively high interest rates through innovative financing programs such as buydowns and mortgage bond programs. Because interest rates are not expected to decline significantly in the next year, homebuilders will have to continue their aggressive programs to further stimulate the housing market.

Another unknown is the impact of the revamped FHA program, in which more changes have been made in the last few months than ever before. The most fundamental change has been the deregulation of the interest rate, which previously had been set by the federal government. Because not all aspects of the new program have been determined yet, there are still many unanswered questions concerning this very important element of the housing market. The effects will become clearer during 1984 as the new regulations are implemented and judged by the marketplace.

While much attention has been focused on the housing sector, the other sectors have been improving throughout the year. This is especially true for the office building and retail sectors with the industrial sector demonstrating a basis for improvement. Due to the tremendous growth potential for Arizona, it is expected that these sectors will continue to expand strongly over the next few years. There has been considerable discussion about economic development to attract firms to Arizona. This will be especially important to the nonmetropolitan counties to stimulate growth and to replace industries that are declining, such as mining and forest products. Economic development will also play an important role in fulfilling the potential for Pima and Maricopa counties. However, the expansion of existing firms actually will provide the greatest stimulus for economic growth. Hence, while trying to bring in new firms, it is important that the existing growing firms not be overlooked.

Although both the real estate market and the economy have been improving, there appears to have been an absence of confidence. The good news concerning the economy has been accompanied by concern about the strength of the recovery, the level of interest rates, the unemployment level, and the return of inflation. Beyond the economic situation, considerable concern has also been expressed over the educational system, the ability of American businesses to compete in the international market, and the quality of public services and infrastructure. Hence, unlike previous recoveries, consumers and firms appear to have moved through 1983 without a great deal of confidence.

As the year comes to an end, however, there are increasing signs that the much-needed confidence is returning. The basis of this renewed confidence is not that the concerns have gone away but, rather, the expressed desire to confront these concerns in a meaningful manner. Because the real estate industry is future-oriented, confidence is especially important. Thus, the main interest for 1984 is not strictly economic—it also involves regaining the confidence that is so important to move individuals and firms ahead to meet the challenges and opportunities of tomorrow.

Metropolitan Phoenix Real Estate Sales: Quarterly Report

THIRD QUARTER, 1983

Median Sales Price

	SINGLE FAMILY			*TOWNHOUSE/CONDOMINIUM*			
	New	*Resale*	*Total*	*New*	*Resale*	*Total*	*Grand Total*
Annual, 1982	$65,000	$64,800	$64,900	$44,900	$59,800	$56,000	$63,500
First Quarter 1983	65,600	64,000	64,500	45,600	59,900	53,000	63,000
Second Quarter 1983	68,100	65,500	66,800	50,200	61,000	57,000	65,000
Third Quarter 1983	71,400	68,000	69,000	52,200	60,000	57,200	67,500

Approximate Number of Sales

	SINGLE FAMILY			*TOWNHOUSE/CONDOMINIUM*			
	New	*Resale*	*Total*	*New*	*Resale*	*Total*	*Grand Total*
Annual, 1982	3,390	23,640	27,030	1,190	4,030	5,220	32,250
First Quarter 1983	1,760	6,900	8,660	540	1,030	1,570	10,230
Second Quarter 1983	2,470	8,440	10,910	690	1,350	2,040	12,950
Third Quarter 1983	2,770	9,340	12,110	680	1,210	1,890	14,000

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University; from data supplied by Marketron Services, Inc., Phoenix.

Arizona New Housing Starts: Quarterly Report

THIRD QUARTER, 1983

BUILDING PERMITS ISSUED

	One Family	*Mobile Homes*	*Duplex*	*3–4 Family*	*5 or More*	*Total Housing Units*
APACHE COUNTY	29	13	2	0	1	70
Eagar	13	4	0	0	0	17
St. Johns	0	7	0	0	1	31
Springerville	4	0	0	0	0	4
Unincorporated	12	2	2	0	0	18
COCHISE COUNTY	136	108	0	3	0	254
Benson	1	9	0	0	0	10
Bisbee	1	0	0	0	0	1
Douglas	0	0	0	0	0	0
Huachuca City	0	0	0	0	0	0
Sierra Vista	87	26	0	2	0	119
Tombstone	0	3	0	0	0	3
Unincorporated	47	62	0	1	0	113
Willcox	0	8	0	0	0	8
COCONINO COUNTY	300	162	0	2	1	490
Flagstaff	147	36	0	2	0	191
Fredonia	2	3	0	0	0	5
Page	8	52	0	0	0	60
Unincorporated	140	68	0	0	1	228
Williams	3	3	0	0	0	6
GILA COUNTY	82	52	0	2	0	142
Globe	0	0	0	0	0	0
Hayden	0	0	0	0	0	0
Miami	0	0	0	0	0	0
Payson	28	26	0	2	0	62
Unincorporated	54	26	0	0	0	80
GRAHAM COUNTY	6	33	0	0	0	39
Pima	0	1	0	0	0	1
Safford	0	1	0	0	0	1
Thatcher	3	5	0	0	0	8
Unincorporated	3	26	0	0	0	29
GREENLEE COUNTY	1	0	1	0	0	3
Clifton	0	0	0	0	0	0
Duncan	0	0	0	0	0	0
Unincorporated	1	0	1	0	0	3
LA PAZ COUNTY	1	22	0	0	0	23
Parker	0	0	0	0	0	0
Unincorporated	1	22	0	0	0	23
MARICOPA COUNTY	5,070	453	123	168	403	11,315
Avondale	10	21	0	4	22	169
Buckeye	1	2	0	0	0	3
Chandler	520	0	15	13	16	780
El Mirage	0	0	0	0	0	0
Gila Bend	0	0	0	0	1	5
Gilbert	67	0	0	0	0	67
Glendale	401	0	0	0	58	1,016
Goodyear	0	0	0	0	0	0
Guadalupe	N/R	N/R	N/R	N/R	N/R	N/R
Mesa	469	0	53	54	19	1,190
Paradise Valley	29	0	0	0	0	29
Peoria	221	0	6	0	0	233
Phoenix	1,670	61	48	82	209	4,763
Scottsdale	406	0	0	4	23	688
Surprise	2	0	0	0	0	2
Tempe	232	0	1	8	25	682
Tolleson	1	0	0	0	0	1
Unincorporated	1,033	369	0	2	30	1,671
Wickenburg	5	0	0	1	0	13
Youngtown	3	0	0	0	0	3
MOHAVE COUNTY	174	240	3	4	3	481
Kingman City	8	3	2	0	2	50
Kingman Area	15	53	0	0	0	68
Lake Havasu City	63	1	0	0	0	64
Lake Havasu Area	1	3	0	0	0	4
Mohave Valley N.	54	96	1	4	1	178
Mohave Valley S.	19	54	0	0	0	73
Dolan Springs	4	5	0	0	0	9
Sacramento Valley	3	21	0	0	0	24
Mohave General	7	4	0	0	0	11
NAVAJO COUNTY	168	71	0	1	0	242
Holbrook	2	0	0	0	0	2
Show Low	20	12	0	0	0	32
Snowflake	5	0	0	0	0	5
Taylor	0	5	0	0	0	5
Unincorporated	133	50	0	1	0	186
Winslow	8	4	0	0	0	12
PIMA COUNTY	1,110	544	31	14	27	4,087
Marana	0	9	0	0	0	9
Oro Valley	12	0	0	0	0	12
South Tucson	5	3	0	0	0	8
Tucson	184	142	31	14	22	2,335
Unincorporated	909	390	0	0	5	1,723
PINAL COUNTY	97	155	1	10	0	295
Apache Junction	25	81	0	6	0	132
Casa Grande	15	0	0	0	0	15
Coolidge	0	2	0	0	0	2
Eloy	0	4	0	0	0	4
Florence	0	9	0	0	0	9
Kearny	0	0	0	0	0	0
Mammoth	0	4	0	0	0	4
Superior	0	0	0	0	0	0
Unincorporated	57	55	1	4	0	129
SANTA CRUZ COUNTY	22	2	1	0	0	26
Nogales	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	0	2	1	0	0	4
Unincorporated	22	0	0	0	0	22
YAVAPAI COUNTY	375	209	10	3	0	615
Chino Valley	10	26	0	0	0	36
Clarkdale	4	3	0	0	0	7
Cottonwood	7	6	8	0	0	29
Jerome	0	0	0	0	0	0
Prescott	45	15	0	2	0	68
Prescott Valley	57	28	2	0	0	89
Unincorporated	252	131	0	1	0	386
YUMA COUNTY	98	122	0	1	1	239
Somerton	0	0	0	0	0	0
Unincorporated	64	102	0	0	0	166
Wellton	0	0	0	0	0	0
Yuma	34	20	0	1	1	73
Total, Maricopa Co., 3rd Quarter, 1983	5,070	453	123	168	403	11,315
Total, Maricopa Co., 3rd Quarter, 1982	2,971	322	20	109	241	6,753
Percent Change	70	40	514	54	67	67
Total, Arizona, 3rd Quarter, 1983	7,669	2,186	172	208	436	18,321
Total, Arizona, 3rd Quarter, 1982	4,714	1,732	46	137	267	11,217
Percent Change	62	26	273	51	63	63

N/R: No Report.

Arizona Building Permits: Quarterly Report

THIRD QUARTER, 1983

	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
	Number of Permits	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
APACHE COUNTY	55	1,126,952	7	572,000	0	0	7	5,200	69	1,704,152
Eagar	19	657,500	1	25,000	0	0	3	5,200	23	687,700
St. Johns	7	0	1	0	0	0	1	0	9	0
Springerville	9	0	0	0	0	0	3	0	12	0
Unincorporated	20	469,452	5	547,000	0	0	0	0	25	1,016,452
COCHISE COUNTY	353	8,062,845	41	3,574,700	0	0	316	1,902,285	710	13,539,830
Benson	16	145,345	0	0	0	0	23	16,300	39	161,645
Bisbee	11	80,000	0	0	0	0	5	259,500	16	339,500
Douglas	15	64,831	0	0	0	0	42	212,201	57	277,032
Huachuca City	13	20,301	0	0	0	0	6	13,887	19	34,188
Sierra Vista	143	4,094,908	15	3,096,700	0	0	189	468,442	347	7,660,050
Tombstone	5	3,300	19	3,000	0	0	24	324,600	48	330,900
Unincorporated	135	3,643,760	7	475,000	0	0	25	479,590	167	4,598,350
Willcox	15	10,400	0	0	0	0	2	127,765	17	138,165
COCONINO COUNTY	649	17,261,974	26	5,716,105	1	31,080	189	1,474,933	865	24,484,092
Flagstaff	238	9,358,523	19	2,109,892	0	0	126	1,195,298	383	12,663,713
Fredonia	6	32,500	0	0	0	0	4	13,300	10	45,800
Page	69	634,864	2	74,000	0	0	23	35,818	94	744,682
Unincorporated	321	6,938,701	5	3,532,213	1	31,080	20	159,945	347	10,661,939
Williams	15	297,386	0	0	0	0	16	70,572	31	367,958
GILA COUNTY	260	2,987,114	9	867,959	8	84,074	45	403,972	322	4,343,119
Globe	9	10,000	0	0	0	0	9	21,476	18	31,476
Hayden	0	0	0	0	0	0	6	3,100	6	3,100
Miami	2	2,300	0	0	2	4,000	1	1,000	5	7,300
Payson	124	725,545	3	561,699	4	65,074	7	12,485	138	1,364,803
Unincorporated	125	2,249,269	6	306,260	2	15,000	22	365,911	155	2,936,440
GRAHAM COUNTY	75	767,702	4	83,000	1	150,000	12	46,100	92	1,046,802
Pima	1	30,000	0	0	0	0	4	9,450	5	39,450
Safford	18	63,550	4	83,000	0	0	6	15,850	28	162,400
Thatcher	14	319,100	0	0	0	0	2	20,800	16	339,900
Unincorporated	42	355,052	0	0	1	150,000	0	0	43	505,052
GREENLEE COUNTY	2	60,000	1	10,000	0	0	2	1,336,000	5	1,406,000
Clifton	0	0	0	0	0	0	0	0	0	0
Duncan	0	0	0	0	0	0	1	10,000	1	10,000
Unincorporated	2	60,000	1	10,000	0	0	1	1,326,000	4	1,396,000
LA PAZ COUNTY	32	581,065	2	35,300	0	0	22	350,349	56	966,714
Parker	3	46,620	2	35,300	0	0	2	14,500	7	96,420
Unincorporated	29	534,445	0	0	0	0	20	335,849	49	870,294
MARICOPA COUNTY	7,484	300,253,553	923	217,313,365	135	24,729,681	6,311	63,177,684	14,853	605,474,283
Avondale	38	413,469	28	5,363,002	1	622,200	40	707,125	107	7,105,796
Buckeye	6	34,750	1	22,000	2	72,000	4	58,490	13	187,240
Chandler	602	20,738,856	33	8,074,683	0	0	312	2,462,720	947	31,276,259
El Mirage	10	10,700	0	0	0	0	0	0	10	10,700
Gila Bend	0	0	1	75,000	0	0	11	90,270	12	165,270
Gilbert	69	3,472,866	0	0	0	0	38	156,816	107	3,629,682
Glendale	480	24,294,054	100	16,581,953	0	0	800	3,408,041	1,380	44,284,048
Goodyear	2	1,000	0	0	4	307,378	20	35,332	26	343,710
Guadalupe	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Mesa	595	24,108,247	97	27,265,202	7	2,517,988	790	11,616,542	1,489	65,507,979
Paradise Valley	73	5,506,100	1	150,000	0	0	80	1,335,876	154	6,991,976
Peoria	289	6,097,231	5	836,042	1	3,340	255	1,184,381	550	8,120,994
Phoenix	2,461	101,044,250	392	96,747,516	23	4,939,005	1,703	25,928,223	4,579	228,658,994
Scottsdale	481	45,788,219	54	29,550,617	3	2,871,970	415	9,572,233	953	87,783,039
Surprise	4	97,530	1	630,000	0	0	10	37,693	15	765,223
Tempe	318	17,894,300	86	21,382,500	93	13,373,400	192	3,664,100	689	56,314,300
Tolleson	12	60,856	0	0	0	0	2	245,525	14	306,381
Unincorporated	2,036	50,389,804	121	9,827,650	0	0	1,635	2,254,617	3,792	62,472,071
Wickenburg	5	180,000	3	807,200	1	22,400	1	403,000	10	1,412,600
Youngtown	3	121,321	0	0	0	0	3	16,700	6	138,021

Arizona Building Permits: Quarterly Report (Continued)

THIRD QUARTER, 1983

	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
	Number of Permits	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
MOHAVE COUNTY	780	10,290,283	54	5,488,568	0	0	736	1,215,583	1,570	16,994,434
Kingman City	38	493,398	14	1,071,015	0	0	16	29,383	68	1,593,796
Kingman Area	139	1,318,294	9	271,044	0	0	126	124,999	274	1,714,337
Lake Havasu City	81	2,964,751	8	2,553,435	0	0	33	212,383	122	5,730,569
Lake Havasu Area	11	78,700	0	0	0	0	12	17,930	23	96,630
Mohave Valley N.	311	3,153,465	17	1,480,582	0	0	367	579,602	695	5,213,649
Mohave Valley S.	113	1,369,871	2	35,716	0	0	85	133,704	200	1,539,291
Dolan Springs	17	201,350	2	29,400	0	0	16	18,468	35	249,218
Sacramento Valley	54	386,808	0	0	0	0	67	62,979	121	449,787
Mohave General	16	323,646	2	47,376	0	0	14	36,135	32	407,157
NAVAJO COUNTY	403	7,033,282	8	596,375	2	192,675	47	286,439	460	8,108,771
Holbrook	5	102,750	0	0	0	0	4	10,200	9	112,950
Show Low	58	1,120,700	3	192,000	1	130,000	21	74,100	83	1,516,800
Snowflake	8	0	0	0	0	0	5	0	13	0
Taylor	9	8,000	0	0	0	0	0	0	9	8,000
Unincorporated	297	5,460,530	4	400,675	1	62,675	14	150,339	316	6,074,219
Winslow	26	341,302	1	3,700	0	0	3	51,800	30	396,802
PIMA COUNTY	2,361	68,469,526	79	70,466,974	5	1,303,900	1,488	17,299,442	3,933	157,539,842
Marana	9	0	1	0	0	0	2	0	12	0
Oro Valley	21	857,451	1	150,000	0	0	12	271,186	34	1,278,637
South Tucson	17	235,505	1	12,168	0	0	3	30,600	21	278,273
Tucson	594	12,219,670	66	57,911,206	0	0	796	10,193,156	1,456	80,324,032
Unincorporated	1,720	55,156,900	10	12,393,600	5	1,303,900	675	6,804,500	2,410	75,658,900
PINAL COUNTY	353	6,490,078	34	3,744,888	8	10,502,264	146	2,438,934	541	23,176,164
Apache Junction	122	2,250,159	13	1,794,084	0	0	85	1,436,092	220	5,480,335
Casa Grande	44	1,469,988	7	670,804	3	10,165,264	16	148,692	70	12,454,748
Coolidge	8	36,300	1	100,000	1	90,000	5	26,200	15	252,500
Eloy	10	24,000	0	0	3	215,000	0	0	13	239,000
Florence	14	0	1	0	0	0	4	0	19	0
Kearny	0	0	0	0	0	0	0	0	0	0
Mammoth	5	78,500	0	0	0	0	0	0	5	78,500
Superior	6	22,400	0	0	0	0	2	1,750	8	24,150
Unincorporated	144	2,608,731	12	1,180,000	1	32,000	34	826,200	191	4,646,931
SANTA CRUZ COUNTY	30	1,535,325	0	0	0	0	11	660,912	41	2,196,237
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	5	26,325	0	0	0	0	2	147,707	7	174,032
Unincorporated	25	1,509,000	0	0	0	0	9	513,205	34	2,022,205
YAVAPAI COUNTY	863	21,141,337	24	3,341,771	16	330,509	342	2,345,725	1,245	27,159,342
Chino Valley	43	834,234	0	0	0	0	26	97,650	69	931,884
Clarkdale	26	292,486	0	0	0	0	3	30,500	29	322,986
Cottonwood	40	810,377	5	1,852,871	10	4,059	11	366,413	66	3,033,720
Jerome	5	0	0	0	0	0	0	0	5	0
Prescott	126	2,763,948	6	617,100	0	0	146	871,865	278	4,252,913
Prescott Valley	120	2,286,275	0	0	5	320,450	3	351,840	128	2,958,565
Unincorporated	503	14,154,017	13	871,800	1	6,000	153	627,457	670	15,659,274
YUMA COUNTY	287	7,508,390	6	717,335	7	1,146,353	98	8,518,360	398	17,890,438
Somerton	0	0	0	0	0	0	6	38,417	6	38,417
Unincorporated	179	4,864,082	1	63,805	5	863,689	48	928,492	233	6,720,068
Wellton	1	0	1	0	0	0	0	0	2	0
Yuma	107	2,644,308	4	653,530	2	282,664	44	7,551,451	157	11,131,953
Total, Maricopa Co., 3rd Quarter, 1983	7,484	300,253,553	923	217,313,365	135	24,729,681	6,311	63,177,684	14,853	605,474,283
Total, Maricopa Co., 3rd Quarter, 1982	4,890	133,768,116	579	133,669,636	90	14,373,222	4,208	88,067,333	9,767	369,878,307
Percent Change	53	124	59	62	50	72	49	−28	52	63
Total, Arizona 3rd Quarter, 1983	13,987	453,569,426	1,218	312,528,340	183	38,470,536	9,772	101,461,918	25,160	906,030,220
Total, Arizona 3rd Quarter, 1982	10,130	231,989,599	791	178,519,409	113	16,296,444	7,246	148,905,655	18,280	575,711,107
Percent Change	38	95	53	75	61	136	34	−31	37	57

*Includes Mobile Homes
N/R: No Report
Note: Some communities do not collect dollar valuations.

Changes in the Metropolitan Phoenix Consumer Price Index

Several changes have been made in the Metropolitan Phoenix Consumer Price Index (CPI), effective in the third quarter, 1983. With these changes, the Metropolitan Phoenix CPI closely corresponds to the CPI for All Urban Consumers (CPI-U), compiled by the U.S. Department of Labor, Bureau of Labor Statistics (BLS).

In January 1983, the BLS revised the Shelter subcategory of the CPI-U after considerable public call for such a change. The methodology of determining changes in homeownership costs has been completely revised. The old methodology priced mortgage rates, home prices, and property taxes, while the new method uses a rental equivalence approach. According to the BLS, "The rental equivalence approach calculates homeowner costs of the shelter based on the implicit rent owners would have to pay to rent the homes they own."[1]

In conjunction with this change, the relative importance of the Shelter category has been lowered substantially, while the relative importance of all other categories has changed moderately. The attached table illustrates the structural changes in the Shelter category as well as changes in the relative importance of all major categories.

The format of the quarterly report on the Metropolitan Phoenix CPI has also been revised to improve readability and to focus on the most relevant price changes. The third quarter report that follows reflects this new format. One final change included in this new format is a change in the comparison areas to the San Diego and Denver metropolitan areas.

Since the rate of inflation is correlated with the population size and rate of growth of a metropolitan area, as well as its geographic location within the United States, the comparison to San Diego and Denver will allow a more critical evaluation of the Phoenix area rate of inflation.[2]

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[1] *CPI Detailed Report*, Bureau of Labor Statistics, any issue in 1983.

[2] For more detail, see the "Arizona Business Scene" in the Second Quarter, 1983 issue of *Arizona Business*.

METROPOLITAN PHOENIX CONSUMER PRICE INDEX

Prior to Third Quarter, 1983

Category	*Relative Importance*
ALL ITEMS	100.000
Food and Beverages	17.437
Housing	46.324
Shelter	33.242
Residential rent	6.479
Rent of dwelling	6.021
Other renters' costs	0.458
Homeownership	26.763
Home purchase	11.773
Financing, taxes, insurance	11.717
Maintenance and repairs	3.273
Fuel and Other Utilities	5.032
Household Furnishings and Operations	8.050
Apparel and Upkeep	5.342
Transportation	17.657
Medical Care	5.351
Entertainment	4.342
Other Goods and Services	3.550

Effective Third Quarter, 1983

Category	*Relative Importance*
ALL ITEMS	100.000
Food and Beverages	19.014
Housing	38.954
Shelter	24.361
Renters' costs	7.867
Rent of dwelling	7.201
Other renters' costs	0.666
Homeowners' costs	15.656
Owners' equivalent rent	15.263
Household insurance	0.393
Maintenance and repairs	0.838
Fuel and Other Utilities	6.616
Household Furnishings and Operations	7.977
Apparel and Upkeep	4.974
Transportation	21.752
Medical Care	6.612
Entertainment	4.619
Other Goods and Services	4.073

Source: United States Department of Labor, Bureau of Labor Statistics, unpublished.

Metropolitan Phoenix Consumer Price Index
Third Quarter, 1983

Prices of goods and services in the Phoenix metropolitan area rose 1.6 percent during the third quarter, 1983, an increase close to the previous quarter's 1.7 percent. However, because of a large decline in the fourth quarter, 1982 consumer price index (see Table 1), the current price level is only 1.5 percent higher than it was one year ago.

The Metropolitan Phoenix Consumer Price Index (CPI), on which these inflation figures are based, is prepared by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University. The quarterly CPI results from comprehensive surveys conducted by the Bureau in cooperative cosponsorship with Valley National Bank.

While several factors contributed to the third quarter's inflation rate, three items caused more than one-half of the moderate advance: new and used car prices surged 6.4 percent; electricity rates rose 7.7 percent, in part due to the seasonal change to summer rates; and health insurance premiums jumped 9.3 percent. Of the three major categories in the CPI—housing, transportation, and food and beverages—only transportation posted more than a small gain (3.3 percent).

Food and Beverages

Prices of food and beverages were nearly stable during the third quarter. The food away from home category

TABLE 1

PERCENT CHANGES IN METROPOLITAN PHOENIX CONSUMER PRICE INDEX

		Percent Change from Preceding Quarter						
Expenditure Category	*Relative Importance*	*1st 1982*	*2nd 1982*	*3rd 1982*	*4th 1982*	*1st 1983*	*2nd 1983*	*3rd 1983*
ALL ITEMS	100.0	1.6	0.5	1.0	(2.0)	0.2	1.7	1.6
Food and Beverages	19.0	1.7	1.1	0.4	(0.6)	2.3	1.5	(0.1)
Housing	39.0	2.1	0.4	0.0	(4.2)	(0.5)	1.8	0.9
Apparel and Upkeep	5.0	0.7	3.5	(1.0)	(1.2)	0.6	1.8	1.0
Transportation	21.8	(0.9)	(0.9)	2.2	(0.8)	(1.9)	2.5	3.3
Medical Care	6.6	4.7	0.9	8.5	1.3	3.0	1.0	4.7
Entertainment	4.6	2.8	(1.4)	1.5	2.3	1.7	(2.1)	(0.2)
Other Goods and Services	4.1	1.5	2.2	1.8	2.0	2.6	2.7	4.7

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank.

TABLE 2

METROPOLITAN PHOENIX CONSUMER PRICE INDEX
THIRD QUARTER, 1983
(1977 = 100)

	Last Qtr. Index	*This Qtr. Index*	*Percentage Change*	*Year Ago Change*
ALL ITEMS	170.5	173.2	1.6	1.5
Food and Beverages	159.6	159.4	−0.1	3.0
Food	160.2	159.7	−0.3	2.9
Food at Home	158.6	157.7	−0.5	1.6
Cereal and Bakery Products	164.3	164.1	−0.1	4.6
Meats, Poultry, Fish and Eggs	155.9	150.9	−3.2	−4.4
Dairy Products	151.5	151.9	0.2	1.1
Fruits and Vegetables	165.1	168.4	2.0	11.6
Other Food at Home	147.6	148.0	0.3	1.8
Food Away from Home	160.6	160.8	0.1	5.3
Housing	182.5	184.1	0.9	−2.0
Shelter	193.6	195.0	0.7	−4.0
Renters' Costs**	100.0	101.7	1.7	0.0
Homeowners' Costs**	100.0	100.2	0.2	0.0
Fuel and Other Utilities	159.8	164.6	3.0	4.4
Gas (Piped) and Electricity	180.3	188.1	4.3	0.9
Household Furnishings and Operations	143.9	143.4	−0.3	1.7
Apparel and Upkeep	134.8	136.1	1.0	2.2
Transportation	164.4	169.8	3.3	3.1
Private Transportation	161.9	166.4	2.8	2.8
New and Used Cars	159.5	169.7	6.4	9.0
Motor Fuels	192.6	196.9	2.2	−5.8
Public Transportation	208.1	228.2	9.7	5.1
Medical Care	188.9	197.7	4.7	10.3
Entertainment	157.7	157.3	−0.2	1.6
Other Goods and Services	150.0	157.0	4.7	12.5

An ** indicates that the base period is Second Quarter 1983.
The year ago change for categories with a Second Quarter 1983 base is unavailable.

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank.

showed little price change, while a decline of 0.5 percent in the food at home component was offset by an increase in the price of alcoholic beverages. Food purchased at grocery stores, including dairy products, cereal and bakery products, and other foods at home (see Table 2), showed little price change.

The index for meats, poultry, fish, and eggs posted the largest price decline since the third quarter, 1979 (3.2 percent), caused by record reductions in the prices of pork, and fish and seafood, as well as by the decreasing prices of beef and other meats. These lower prices were partially offset by higher prices for fruits and vegetables, caused by an 18.8 percent rise in the price of fresh fruits. Fresh vegetable prices dropped 9.7 percent, following a large jump (22.3 percent) in the previous quarter.

Housing

Housing costs rose 0.9 percent during the third quarter. This modest increase was due largely to an advance of 3.0 percent in the fuel and other utilities category, which was primarily caused by electricity rate increases. Shelter costs advanced only slightly as the new category, homeowner's costs, rose a slight 0.2 percent. Renters' costs, also a new category, climbed a larger 1.7 percent, but its primary subcategory, rent of dwelling, rose only 0.3 percent. High vacancy rates and high levels of apartment construction helped to hold down rent increases.

Declining 0.3 percent, the household furnishings and operations category also contributed to the small advance in housing prices. The prices of both household appliances and other household equipment fell by record percentages.

Transportation

The third quarter's increase of 3.3 percent in the cost of transportation was the largest jump since the first quarter, 1981. While most of the private transportation subcategories posted increases, the prices of new cars (up 4.4 percent) and used cars (up 7.7 percent) were the primary causes of the acceleration. Advances also occurred in the motor fuels and vehicle maintenance and repair groups.

Vehicle insurance premiums and vehicle financing charges both fell, the latter for the fifth quarter of the last six quarters. Public transportation costs surged 9.7 percent as most subcategories showed large increases.

Medical Care

The index for medical care continued its pattern of large increases every other quarter, rising 4.7 percent in the third quarter after a small 1.0 percent gain in the second quarter. Most of the third quarter's price acceleration can be traced to the sharp rise in health insurance premiums. The other large subcategory, professional services, advanced moderately. The cost of hospital and related services, however, jumped 6.1 percent.

Other Categories

Apparel and upkeep prices rose only 1.0 percent during the third quarter, as a large drop in the prices of men's and boys' apparel partially offset increases in the prices of footwear and women's and girls' apparel. Entertainment expenses fell for the second consecutive quarter, led by a large decline in the index for sporting goods and equipment.

A 4.7 percent third quarter increase was the largest quarterly jump ever in the other goods and services category. It contributed to the 12.5 percent increase from one year ago, the largest annual change of any major category. The third quarter rise was the result of a 5.4 percent increase in each of the largest subcategories: personal care and tobacco products. With large price boosts in three of the last four quarters, tobacco products cost 23.4 percent more than they did one year ago.

Comparison Areas

The third quarter inflation rate in the Phoenix area was higher than the national average due to large increases in three categories: medical care, other goods and services, and transportation (see Table 3). However, in the last year, Phoenix area inflation was less than the national average, largely a result of declining housing costs.

TABLE 3

METROPOLITAN PHOENIX CONSUMER PRICE INDEX UNITED STATES AND COMPARATIVE CITIES

THIRD QUARTER, 1983

	Percentage Change from Last Quarter		*Percentage Change from One Year Ago*			
Expenditure Category	*Phoenix*	*United States*	*Phoenix*	*United States*	*Denver*	*San Diego*
ALL ITEMS	1.6	1.1	1.5	2.6	5.0	0.1
Food and Beverages	(0.1)	(0.1)	3.0	1.8	3.4	4.9
Housing	0.9	0.9	(2.0)	1.5	4.8	(2.0)
Apparel and Upkeep	1.0	0.6	2.2	2.9	(2.5)	5.6
Transportation	3.3	2.1	3.1	2.1	4.0	2.1
Medical Care	4.7	1.6	10.3	8.0	11.6	6.4
Entertainment	(0.2)	0.7	1.6	3.7	6.2	4.7
Other Goods and Services	4.7	1.9	12.5	11.9	13.9	11.9

Source: Metropolitan Phoenix data compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank; other data from U.S. Department of Labor, Bureau of Labor Statistics

Metropolitan Phoenix inflation was also lower than that of the Denver area in six of the seven major categories; the greatest difference was in the housing category. Compared to the San Diego area, however, inflation in Phoenix was higher, with the greatest difference occuring in the medical care component.

Outlook

Throughout most of 1982 and into early 1983, the inflation rate in the Phoenix metropolitan area slowed until it was near zero, lower than the national rate. In the second and third quarters, inflation accelerated both nationally and in the Phoenix area. Although this acceleration was greater in metropolitan Phoenix, the area's inflation in the year ending with the third quarter, 1983, was still lower than the national average (1.5 percent compared to 2.6 percent). The higher inflation rates of the second and third quarters will probably continue, since most economists expect the annualized rate of inflation nationally to stabilize near 5 percent for the remainder of 1983 and into 1984. Phoenix area inflation will probably approximate the national rate in coming quarters.

ARIZONA SALES OF ELECTRICAL POWER
(In Millions of Kilowatt Hours)

	1983	*1982*	*Percent Change From Prior Year*	*Percent Change From Prior Month*
August	3313.0	3433.1	−3.5%	−1.1%
September	3196.9	2802.3	+14.1	−3.5
October	2318.6	2192.9	+5.7	−27.5

Source: Arizona Power Authority (based on reports from major suppliers)

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______, (coauthor), "1980 Census Review: The United States, Arizona, and Maricopa County," 2nd Quarter Issue, 1983, 3–13.
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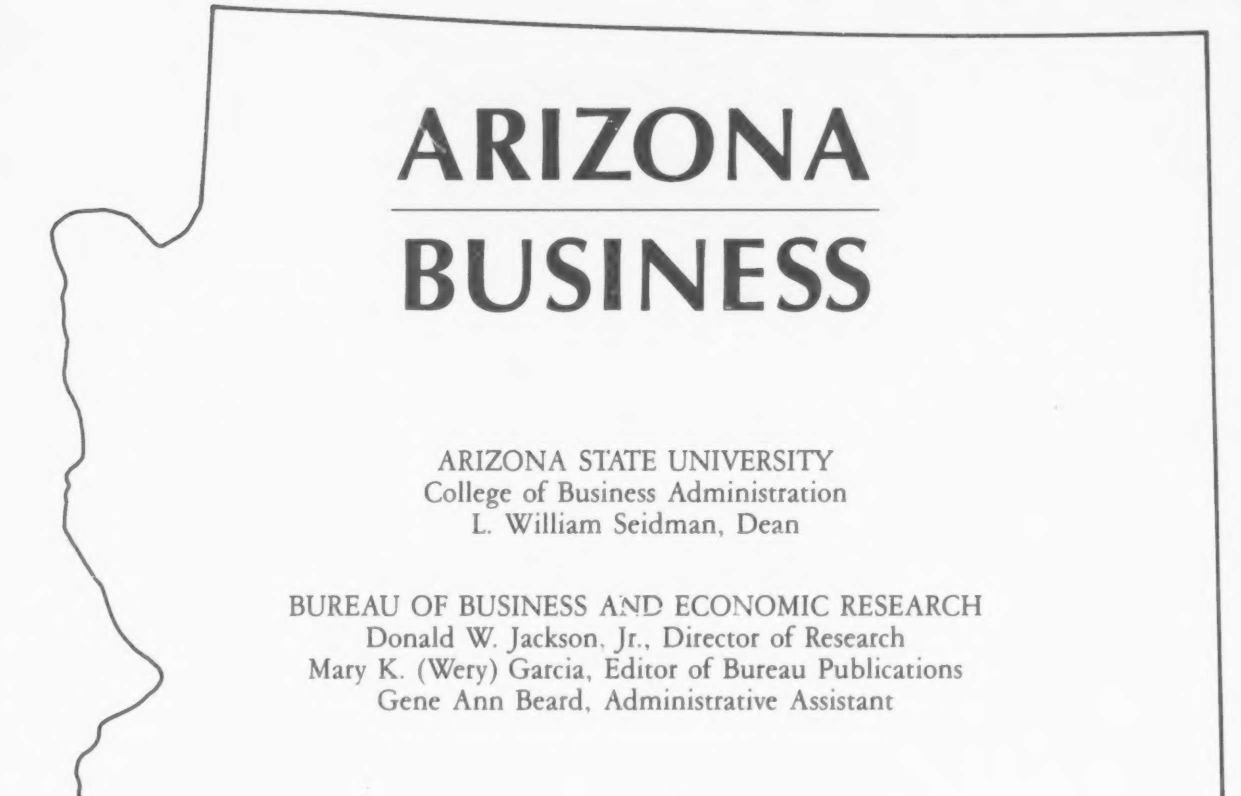

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Report to the Reader

The month of March came in with a roar, as Arizona State University kicked off its year-long "Excellence for a New Century" Centennial celebration. The College of Business Administration participated in the university-wide "showcase" on March 4 by offering special presentations and tours. The following day, with the theme "Dedication to Excellence," the College christened its new, six-story, $9-million building, "College of Business East."

Dedication speaker Dr. Andrew Grove, president of Intel and author of *High Output Management*, spoke on "Unleashing the Organization." He compared work enthusiasts to sports enthusiasts, noting that the latter are usually referred to positively as "sports nuts," while the former are often negatively called, "workaholics." He cited runners as an example of "sports nuts" who anxiously assess their progress at the track each day by using a stop watch. In the workplace, Gove said, it would be desirable to stimulate the same type of enthusiasm for improving one's daily performance. He recommended that management provide frequent "task-relevant feedback" that is thorough, thoughtful, and as honest as the runner's stopwatch.

Grove's address was a fitting conclusion to three days of celebration on campus. The air of optimism among faculty, staff and students is spurred not only by these recent special events but by the continuing economic upturn. In this issue of *Arizona Business*, we review the strong economic activity of 1983 that produced the current healthy picture.

The Metropolitan Phoenix Consumer Price Index, for example, experienced the lowest rate of increase in its 14-year history during 1983 - 1.6 percent. Total 1983 construction activity in Arizona exceeded the 1979 record level of $2.6 billion, with the issuance of 105,618 building permits, valued at $3.6 billion. Dr. Harold Fearon's December survey of purchasing agents statewide revealed that 53 percent anticipated their firms would spend more for new plant and equipment during 1984 than they spent in 1983. The rate of expenditure, Fearon said, is anticipated to be on a par with the boom years of the late 1970s.

Other articles in this issue explore the impact of airline deregulation on service to small communities; the financial planning model as an increasingly popular management tool; and the diversity of small communities statewide.

Phoenix Inflation Slows to Record Low in 1983

TIMOTHY D. HOGAN
TOM R. REX

Consumer prices in the Phoenix area showed an average increase of 1.6 percent in 1983. The moderating trend in consumer price inflation that began in 1981 continued for a third year, with the result that last year's rate was the lowest in the 14-year history of the Metropolitan Phoenix Consumer Price Index (CPI). The future rate of increase in Phoenix area prices, although continuing to be moderate, can be expected to quicken somewhat during 1984 and beyond.

This article details the pattern of 1983 consumer price increases to explain why inflation eased further. Phoenix area price trends are also compared with national patterns and with the inflation rates recorded in other areas of the country. In addition, forecasts of probable consumer price trends during 1984 are presented. In the final section, the major revisions in methodology relating to homeownership costs, which were implemented during 1983, are discussed.

Five of the seven major categories in the Metropolitan Phoenix Consumer Price Index posted smaller gains in 1983 than in 1982, contributing to a record-low annual increase of 1.6 percent. Most forecasters expect inflation to remain moderate in 1984.

The CPI is compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University. Cosponsor is Valley National Bank.

Timothy D. Hogan is Professor of Economics in the ASU College of Business Administration. He is also a faculty research associate in the ASU Bureau of Business and Economic Research. Tom R. Rex is the Bureau's Manager of Research Support.

BACKGROUND ON THE PHOENIX CPI

The U.S. Bureau of Labor Statistics (BLS) has, for more than 60 years, compiled the most-often-used statistical measure of inflation—the Consumer Price Index. The BLS now conducts price surveys in 85 urban areas throughout the United States and produces a national Consumer Price Index (CPI) as well as local indexes for 28 metropolitan areas.

Because Phoenix has never been one of the urban areas surveyed by the BLS, the Bureau of Business and Economic Research at Arizona State University developed a Metropolitan Phoenix CPI in 1974. The methodology for the Phoenix CPI was developed with the help of the BLS and is consistent with the methodology used in producing the national index. Quarterly CPI figures have been compiled by the Bureau since 1975.[1] Cosponsor of the current CPI study is Valley National Bank.

As its name implies, the CPI measures changes in the prices of goods and services typically purchased by consumers. It compares the given cost of a fixed market basket of goods and services in a given time period with the cost of the same market basket during a particular base period.

Methods of Calculating Inflation

The "inflation rate" is calculated from the CPI. Several different methods can be employed. In this article, the annual average percentage change is used, which involves averaging the four quarterly index values for a given year and comparing this figure to the average of the previous year. This method revealed a 1.6 percent inflation rate for 1983 in the Phoenix area. The national index, compiled monthly, uses the 12 monthly indexes to compute the average.

The second method of calculating the inflation rate is simply to compute the percentage difference between the index value at the end of the year and the index value at the end of the previous year. This method is used in the quarterly CPI reports published in *Arizona Business* (see page 45 of this issue). Thus, in Phoenix, the 1983 annual average percentage change was 1.6 percent, but the change from the end of 1982 to the end of 1983 was 4.1 percent.

A third method of calculating the inflation rate is not used in Phoenix but is sometimes used with the national index. This method involves annualizing the inflation rate for one month by multiplying the seasonally-adjusted, one-month percentage change by 12. Thus, it is possible to have three very different inflation rates expressed at the same time.

The CPI As a Measure of Inflation

When first published by the BLS, the CPI was called a cost-of-living index rather than a price index. It continues to be widely used as a measure of changes in living costs, which has led to increasing controversy concerning its accuracy as a measure of inflation. Because it has been designed to measure price changes in a representative market basket of goods and services purchased by consumers, the CPI is not really a cost-of-living index. It does not include changes in significant components of most households' living costs—most notably income and Social Security taxes. With its fixed market basket, the CPI also does not reflect changes over time in consumer tastes or product offerings. The CPI measures changes in consumer prices, but the way those price changes affect each household's living costs depends on how that household chooses to spend its income.

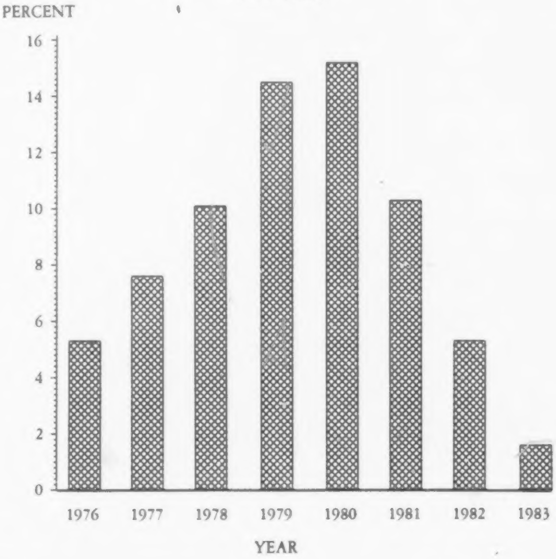
It should also be noted that the CPI measures only relative changes in price levels; it cannot be used to compare absolute prices among different regions. A comparison of the Metropolitan Phoenix CPI with the national CPI (or indexes for any other urban area) does not indicate whether consumer prices in the Phoenix area are higher or lower than the average prices throughout the United States (or prices in the comparison city). If the CPI for city "A" were 200 and for city "B" were 250, these figures indicate only that prices have increased more rapidly in city "B" since the base period. Since price levels could have been quite different in the two cities during the base period, it is impossible to tell from the CPI whether current prices are higher in city "A" or in city "B."

PHOENIX CONSUMER PRICES IN 1983

The 1983 annual increase of 1.6 percent was the lowest in the history of the Metropolitan Phoenix CPI, as illustrated in Figure I. The cyclical pattern of inflation is

FIGURE I

METROPOLITAN PHOENIX
CONSUMER PRICE INDEX
Annual Percentage Changes,
1976-1983



Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cosponsorship with Valley National Bank.

evident from this graph: Inflation accelerates during economic expansion and into the early stages of an economic slowdown, then slackens during an economic recession and into the economic recovery. After a 1980 peak rate of 15.2 percent, inflation has decelerated for three consecutive years. This decline was prompted by a short 1980 recession that was followed by a longer slump in 1981-1982.

Five of the seven major categories in the Metropolitan Phoenix CPI posted smaller gains in 1983 than in 1982. The only exceptions were transportation, with a slightly greater advance, and other goods and services, with considerably higher rates in 1983. Table 1 shows the 1983 percentage change as well as the relative importance of selected categories.[2]

Food and Beverages

Prices for food and beverages rose 3.5 percent in 1983, slightly less than in 1982. Food at home, the major portion of this expenditure group, climbed only 2.5 percent. Although prices of fruits and vegetables rose 9.0 percent in 1983, following a 1982 decline, both the dairy products and other foods at home groups advanced less than 2 percent. Prices for meats, poultry, fish, and eggs held steady.

TABLE 1
METROPOLITAN PHOENIX
CONSUMER PRICE INDEX
(1977 = 100)
Selected Items

Category	*Relative Importance*[1]	*Annual Average Index*		*Percentage Change*
		1982	*1983*	
ALL ITEMS	100.0%	168.7	171.3	1.6%
Food and Beverages	19.0	153.7	159.1	3.5
Food	17.8	154.3	159.6	3.4
Food at Home	11.5	154.4	158.2	2.5
Cereal and Bakery Products	1.5	157.0	162.9	3.8
Meats, Poultry, Fish and Eggs	3.4	154.5	154.4	– 0.1
Dairy Products	1.6	150.0	152.8	1.9
Fruits and Vegetables	1.8	151.1	164.7	9.0
Other Food at Home	3.1	146.0	147.9	1.3
Food Away from Home	6.2	151.9	159.6	5.1
Housing	39.0	185.7	182.4	– 1.8
Shelter	24.4	201.8	194.1	– 3.9
Fuel and Other Utilities	6.6	151.4	158.3	4.6
Gas (Piped) and Electricity	4.3	173.1	177.2	2.3
Household Furnishings and Operations	8.0	139.2	142.9	2.7
Apparel and Upkeep	5.0	132.3	135.4	2.3
Transportation	21.8	162.9	166.3	2.1
Private Transportation	20.2	160.4	163.6	2.0
New and Used Cars	7.1	152.7	164.7	7.8
Motor Fuels	6.3	205.9	189.9	– 7.8
Public Transportation	1.5	209.0	213.1	2.0
Medical Care	6.6	172.5	193.8	12.4
Entertainment	4.6	155.2	159.5	2.8
Other Goods and Services	4.1	138.3	152.7	10.4

[1] Expressed as a percentage of all items. The relative importance of the seven major categories sums to 100.0 percent. Only selected detail items are shown; thus, the relative importance of these items will not necessarily sum to that of the major categories.

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University in cooperative cosponsorship with Valley National Bank.

Housing

Housing costs fell in 1983, as a sizable decline in shelter expenses was not completely offset by small gains in fuel and other utilities and in household furnishings and operations, each of which increased less than in 1982. Within the shelter category, homeowners' costs declined, but apartment rents climbed 3.0 percent. The 1983 increase in the fuel and other utilities group, 4.6 percent, was much more moderate than the 1982 jump of 16.2 percent. The improvement was caused by nearly stable electricity rates in 1983, following a 12.2 percent boost in 1982, and by a 5.1 percent rise in piped gas rates, following a 43.6 percent hike in 1982. Telephone rate increases were also moderate in 1983.

Transportation

The 2.1 percent rise in 1983 transportation costs was only slightly higher than the 1982 gain of 1.5 percent. Car prices were the primary reason for the 1983 advance, with new car prices rising 6.7 percent and used car prices increasing 8.5 percent. In contrast, gasoline prices fell by more than 7 percent for the second consecutive year, prices for vehicle parts and equipment declined in both years, and vehicle finance charges dropped 10.2 percent in 1983. Public transportation costs advanced by only a small amount in both 1982 and 1983, after very large gains in earlier years. Airline fares declined in both 1982 and 1983.

Medical Care

The 12.4 percent increase in medical care in 1983 was again higher than that of any other major category. The slight improvement from the 1982 increase of 14.5 percent resulted from a much more moderate advance in doctor and dentist fees (3.9 percent, compared to 12.6 percent in 1982). However, hospital costs again rose approximately 15 percent, and inflation in health insurance premiums accelerated to 25 percent in 1983 from 19 percent in 1982.

Other Categories

Advances in both the apparel and upkeep and in the entertainment categories slowed to under 3 percent in 1983. Prices of other goods and services accelerated, however, to double-digit rates. This large gain was due primarily to an 18.6 percent surge in the price of tobacco products.

COMPARISONS TO OTHER AREAS

The increase in consumer prices in the Phoenix area during 1983 was only one-half the U.S. average, as shown in Table 2. A decline in local housing costs, compared to a 2.7 percent gain nationally, was the primary reason for the Phoenix area's lower rate. Price increases were also lower in the Phoenix area for entertainment but were higher than the national average for medical care and for food and beverages.

Inflation in the San Diego and Denver metropolitan areas, the nearest areas comparable in size to metropolitan Phoenix, exceeded Phoenix's rate in 1983. San Diego's pattern of inflation during 1983 was similar to that in Phoenix: gradually accelerating from a point very near zero. However, the rate accelerated a little more rapidly in San Diego, resulting in a higher rate of inflation in all categories except medical care and other goods and services. In contrast, Denver's inflation rate, more than 7 percent in early 1983, gradually slowed throughout the year. The result was much higher average inflation, in-

TABLE 2
METROPOLITAN PHOENIX
CONSUMER PRICE INDEX
UNITED STATES AND
COMPARATIVE METROPOLITAN AREAS

1983 ANNUAL AVERAGE PERCENTAGE CHANGE

Expenditure Category	*Phoenix*	*United States*	*Denver**	*San Diego**
ALL ITEMS	1.6%	3.2%	5.7%	2.5%
Food and Beverages	3.5	2.2	3.5	5.6
Housing	– 1.8	2.7	6.4	1.7
Apparel and Upkeep	2.3	2.5	– 2.3	3.3
Transportation	2.1	2.4	3.8	3.0
Medical Care	12.4	8.7	10.9	8.5
Entertainment	2.8	4.3	8.3	5.1
Other Goods and Services	10.4	10.9	13.6	9.5

*Estimated

Source: Metropolitan Phoenix data compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cosponsorship with Valley National Bank; other data from the U.S. Department of Labor, Bureau of Labor Statistics.

cluding the housing, entertainment, and other goods and services categories.

INFLATION FORECASTS

Each year in December, a panel of experts discusses the future course of both the national and local economies during the Economic Forecast Luncheon presented by the College of Business Administration at Arizona State University (the 1983 luncheon was cosponsored by Valley National Bank).

As part of his keynote luncheon address, Robert J. Eggert, creator and editor of the national *Blue Chip Economic Indicators* newsletter, predicted that the current expansion of the U.S. economy will prevail at least through 1985 and that inflation will begin to accelerate from the 3.2 percent level recorded nationally in 1983. Basing his forecast on the consensus of 44 U.S. economists whom he surveyed in November, Eggert said the national rate of inflation would increase to 5.1 percent in 1984 and to 5.9 percent in 1985.[3] On the local level, ASU Economics Professor Richard Winkelman forecast an approximate rise of 6 percent in the metropolitan Phoenix CPI during 1984.[4]

These inflation forecasts are similar to those produced by other economists and economic forecasting models at the end of 1983. For example, in the January, 1984, issue of *Nation's Business*, the staff of the U.S. Chamber of Commerce Forecast Center predicted a 5.4 percent inflation rate in 1984, with a jump to 6.3 percent in 1985.[5] The annual forecast issue of *Business Week* also predicted no downturn in the national economy until 1986 and moderate acceleration in the national inflation rate to 5 percent for 1984 and somewhat higher in 1985. *Business Week* also presented forecasts by individual economists and econometric services. Their predictions for the 1984 inflation rate ranged from 3.7 percent to 6.9 percent.[6] The January forecast by the widely-used Data Resources, Inc. (DRI), an economic forecasting service, is optimistic. They predict a small 4.5 percent increase in the national CPI during 1984, with moderate acceleration of inflation to 4.7 percent in 1985. The DRI forecast assumes no substantial tax increases and/or expenditure cuts until 1985, a slight easing of monetary policy by the Federal Reserve, steady oil prices, and some weakening of the value of the U.S. dollar in world markets.

Although a turning point in labor cost inflation probably has occurred, the economic environment of the past few years has greatly moderated the pressure for wage increases that would normally be expected during a period of economic growth. Last year's wage gains were the smallest since 1965. The overall hourly earnings index rose only 3.7 percent during 1983 and, in specific sectors, increases were even less. In the construction sector, for example, wages increased just 1.0 percent. Given that unemployment rates have fallen substantially, increases in labor costs are expected but are forecast to be less than 4 percent in 1984 and 4.5 percent in 1985.

Food prices are widely expected to rise more rapidly in 1984. The recent stability in consumer food prices is expected to end as a result of last summer's drought, the recent winter freeze, and last year's reduced crop planting under federal farm programs. Higher feed grain prices have caused cutbacks in cattle and hog breeding, so that meat prices in particular may be expected to rise substantially during 1984.

Despite pressure from food prices, the majority of forecasters expect inflation to remain moderate in 1984, restrained by rising productivity, ample production capacity, relatively stable energy prices, and a strong dollar. Not everyone agrees with such forecasts, however. Some are very concerned with the impact of the big federal budget deficit upon price levels and the health of the U.S. economy in general. An alternative econometric forecast, produced by DRI, incorporates such concerns and projects both higher inflation rates (5.0 percent in 1984 and 5.6 percent in 1985) and higher interest rates. The latter would depress housing and other interest-sensitive sectors and lead to a recession by late 1985.

Other economists, often identified as "monetarists" (those who believe that changes in the money supply's rate of growth have various important effects on the economy) feel that Federal Reserve actions caused the money supply to grow rapidly in 1982 and early 1983. The subsequent over-correction to sharply reduce money growth, they say, will result in accelerating inflation during 1984, closely followed by the beginning of another recession. A third DRI econometric forecast based on the monetarist approach does, indeed, predict higher future inflation — 5.5 percent in 1984, followed by a 6.8 percent rate in 1985.[7]

It is noteworthy that even these pessimistic forecasts do not predict a quick return to the high levels of inflation experienced during the 1978-1981 period. Bringing down the rate of inflation has been a major goal of both the Reagan administration's economic policies and the Federal Reserve's monetary policy since 1979. The record of the past two years has demonstrated success on the inflation front. Even though most economists expect the pace of inflation to quicken somewhat in 1984 and beyond, they are generally optimistic that present macroeconomic policies will lead to both a continuation of the present recovery and the restraint of inflation in the U.S. economy.

CHANGES IN THE CONSUMER PRICE INDEX

Several changes were made in the Metropolitan Phoenix CPI, effective in the third quarter, 1983. With these changes, the Metropolitan Phoenix CPI closely corresponds to the CPI for All Urban Consumers (CPI-U), conducted by the BLS. In January 1983, the BLS revised the Shelter subcategory of the CPI-U, after considerable public call for such a change. The methodology for determining changes in homeownership costs was completely revised: The old methodology priced mortgage rates, home prices, and property taxes, while the new methodology uses a rental equivalence approach. According to the BLS, "The rental equivalence approach calculates homeowner costs of the shelter, based on the implicit rent owners would have to pay to rent the homes they own."[8] In conjunction with this change, the relative importance of the Shelter category has been lowered substantially, while the relative importance of all other categories has changed moderately. The Fourth Quarter, 1983, *Arizona Business* provides a more detailed explanation of these changes.[9]

[1] Readers interested in the development of the Metroplitan Phoenix Consumer Price Index should refer to Stephen C. Hora, "Consumer Prices in the Phoenix Metropolitan Area," *Arizona Business* (August-September 1975): 3-13; and Timothy D. Hogan, "The 1979 Consumer Price Index: Its Background and Significance," *Arizona Busines* (March 1980): 3-9.

[2] The relative importance weight associated with each expenditure category is based on the expenditure patterns of urban households in the western region of the United States. The weights, originally compiled by the BLS from a 1972-1973 household expenditure survey, are periodically updated. Since not all expenditure subcategories are shown, the sum of the weights presented will not add to 100.0 percent.

[3] Robert J. Eggert, "National Forecast: Mini-boom for 1984," *Arizona Business* (Fourth Quarter, 1983): 5-6.

[4] Richard D. Winkelman, "The Arizona Economy: A Good Year in 1984," *Arizona Business* (Fourth Quarter, 1983): 10.

[5] "1984-85 Economic Forecast," *Nation's Business* (January 1984): 20-25.

[6] "Economists Join in a Chorus of Optimism for the New Year," *Business Week* (Dec. 26, 1983): 54-55.

[7] Date Resources, Inc., *U.S. Forecast Summary* (February 1984) and *The Review of the U.S. Economy* (January 1984). For more detailed forecast information, see the tables for the CONTROL012484, HARDLANDING012684 (deficit worries), and BAD84012684 (monetarist) forecasts in the *U.S. Forecast Summary* (February 1984): 11-12.

[8] U.S. Department of Labor, Bureau of Labor Statistics, *CPI Detailed Report*, any issue in 1983.

[9] The assistance of the ASU Bureau of Business and Economic Research's research assistants Cindy Brillhart, Karyl Bryniarski, Kathryn Charney, Sigrid Jones and Scott Rahn in the compilation of the 1983 Consumer Price Index reports is gratefully acknowledged.

Financial Models: Helping Top Managers Plan

JOSEPH W. WILKINSON

In the 25 years that business firms have employed computers, managers have received little direct assistance from them in their planning and controlling activities. Recent years, however, have brought a new class of information systems to the fore. "Decision support systems" help managers to make decisions ranging from those involving production control to those pertaining to new product development and merger planning.

Most decision support systems have two characteristics in common: (1) they employ decision models within computer-based information systems, and (2) they provide assistance to middle and top-level managers, primarily in the making of strategic planning decisions.

One significant subset of decision models is the financial model (also called the financial planning model). The purpose of this article is to examine several key aspects of financial modeling and its role in management decision-making, especially as experienced by four Arizona firms.

The financial planning model, a type of decision model employed within computer-based information systems, is an increasingly popular management tool. This article reports on several key aspects of financial modeling and its use by four major Arizona firms: Salt River Project, Samaritan Health Services, Tanner Companies, and Western Savings and Loan Association.

Joseph W. Wilkinson is Professor of Accounting in the College of Business Administration, Arizona State University.

WHAT ARE FINANCIAL MODELS?

A model is a representation of reality — a map, for example. It encompasses a description of real-life relationships among the key variables of an entity or activity. Generally, the relationships can be expressed in symbolic terms. For instance, the equation $A = E$ (assets equal equities) expresses the key relationship underlying the double-entry accounting system. A financial model is the class of model that expresses the financial relationships of an organization or certain of its activities. The accounting equation stated above is an example of a financial model — albeit one that is extremely simplified.

A specific financial modeling system for an organization is composed of four key components: an input component, a processing component, an output component, and a data base component. The input component enters data items drawn from environmental sources as well as from the internal operations of the organization. Typical data items include sales levels, interest rates, growth trends, and cash flows.

The processing component consists of mathematical and statistical expressions, through which the input items are manipulated and processed to generate the desired outputs. These expressions generally include the accounting equation (although usually stated in more detailed forms), as well as other detailed relationships among the financial and operational processes within the organization.

The output component generates such financial statements as a *pro forma* balance sheet, income statement, and funds flow statement for the organization. The data base component stores data items that the processing component employs, together with the input data, to produce useful outputs. For instance, the data base might contain the actual financial statements for the past period; these data would facilitate the preparation of *pro forma* statements for the upcoming period and enable managers to compute expected changes in key factors, such as sales, and key ratios, such as return on investment.

THE BENEFITS OF FINANCIAL MODELING

Increasing numbers of managers are finding that computer-based financial models can be of great assistance in decision-making. In fact, financial modeling offers several significant benefits. First, a financial model provides better understanding of the key factors affecting decisions, of the relationships among these factors, and of their relative sensitivities to decision outcomes. For instance, by taking into account accelerated depreciation rates and tax credits, an investment-type financial model can aid managers in more realistically assessing the consequences of acquiring an expensive piece of capital equipment.

Second, a financial model, especially one that is computer-based, enables a manager to evaluate a greater number of alternative courses of action. Thus, a marketing manager might evaluate the relative profitability to be expected from numerous pricing strategies. Third, a financial model allows the time required for making decisions to be significantly reduced, thereby providing more opportune results and/or enabling the decision maker to react more promptly to changes in the organization or environment.

In summary, financial models significantly improve the quality and timeliness of planning decisions. Furthermore, such models can significantly aid in the control of ongoing operations and managerial performance.

THE FINANCIAL MODELS OF FOUR ARIZONA FIRMS

Financial modeling applications grew at an exponential rate throughout the 1970s. Current users, located mainly in the United States and a few other countries, such as Great Britain, number in the thousands. Represented among the users are organizations of every size and industry group.

A growing number of Arizona organizations have recognized the benefits of financial modeling and have incorporated financial models into their planning process. Four representative users interviewed for this article are Tanner Companies, Samaritan Health Services, Salt River Project, and Western Savings and Loan Association.

Tanner Companies Model

The Tanner Companies, a Phoenix-based multidivisional firm, undertakes construction projects throughout Arizona and sells construction materials. For several years, it has employed a financial model in the planning and budgeting process. The model, which is linked to, and fed by, marketing and production models, provides timely forecasts for up to five years into the future.

Tanner's financial model is constructed as several modules. The first module generates financial statements at the divisional level. The second module produces a consolidated balance sheet and income statement, while the third module provides a funds flow statement. All of these outputs represent forecasts, expressed in forms familiar to managers and based upon planned strategies and assumptions concerning upcoming economic conditions and company operations.

A powerful feature of the model is its ability to answer "what-if" questions, enabling Tanner managers to evaluate how changes in key factors will affect critical criteria. For instance, the model enables the treasurer to evaluate how refinancing a loan will affect the net income and the cash balance.

The top managers of the Tanner Companies are enthusiastic about the benefits of their financial model. They are certain that better planning has led to a more precise definition of the firm's needs, which, in turn, has resulted in improved cash management and reduced borrowing rates.

Samaritan Health Services Model

Another organization that employs a financial model is Samaritan Health Services, the largest health care provider in Arizona. Its model, which generates financial forecasts for as many as 10 years into the future, aids in strategic planning. For instance, the model enables planners to determine a need for, and justify, additional hospital facilities as well as to plan for financial requirements in upcoming years.

The model is intentionally constructed to produce relatively summarized financial projections, since it is not intended to replace the short-term tactical planning process. However, the model provides a high degree of flexibility. Thus, it allows planners to enter, via online terminals, "what-if" questions that affect key factors and criteria. Questions of interest include, "What would be the effect on net income and profitability ratios of a 4 percent reduction in patient days during the next year?" and, "What annual revenue rate increase would provide a required debt service coverage of 2½ times, assuming a 1 percent reduction in patient days during each of the next 10 years?"

Salt River Project Model

A financial model currently in use by Salt River Project, a Phoenix-based electrical power and water utility, produces a five-year base case projection, in financial terms, of the firm's overall operations. Composed of nine integrated modules, it employs data drawn from all major departments within the utility. Those departments, in turn, may receive a variety of reports, including the balance sheet and funds available statement, for use in planning the future of their respective areas. The model also provides a "what-if" capability that enables users to observe the effects upon bottom line financial results of changes to key variables and parameters.

The nine modules of the model can be summarized as follows:

1. A forecast module that accesses monthly energy, demand, and customer data, passing it along to succeeding modules.
2. A power capital module that combines major and recurring capital project data with system, employee, customer, inflation, and capacity exchange data to produce annual projections on construction expenditures.
3. A water capital module that utilizes the capital data provided by water-related departments (together with relevant accounting and economic factors) to develop monthly and annual estimates for capital expenditures and contributions in aid of construction.
4. A production costing module that calculates the monthly fuel expense associated with energy generation.
5. A power revenue module that calculates electric revenues in total, by customer class, or by individual customer.
6. A water revenue module that calculates earned revenues and cash collections related to water deliveries.
7. A plant accounting module that updates plant account balances to reflect capital and plant-related expenditures and transactions such as depreciation, taxes, and construction work in progress.
8. An expense module that computes or extrapolates from base-year data the various operating and maintenance expenses over the five-year period.
9. A finance module that consolidates the revenues, expenses, and capital requirements calculated by the other modules, and that calculates such values as interest income, working capital changes, and ending fund balances.

Western Savings and Loan Model

A financial model used during the last seven years by Western Savings and Loan, the largest savings and loan institution in Arizona, provides 10-year forecasts. It generates three basic reports — a statement of condition, a statement of income and expenses, and a cash flow statement — plus other reports such as budgetary comparison reports. Users may also customize reports to suit their needs.

The model reflects relationships among 135 variables, including interest rates, savings inflows, savings rates, loan volumes, and delinquency rates. A sophisticated "what-if" capability enables one or more of these variables to be changed simultaneously and the results to be compared against an initial or base case budget. For instance, the array of savings interest rates may be changed to determine the effects upon borrowing rates and other key factors. Revisions in regulations, loan policies, and related factors are also incorporated into the model as soon as they occur, so that the forecasts can be promptly adjusted to reflect these significant changes.

THE CONSTRUCTION AND USE OF FINANCIAL MODELS

Financial models vary widely in the details of their construction and in the ways that they are used. This section surveys some of the key choices that must be made when constructing and manipulating models.

Model Construction Features

Upon deciding to construct a financial model, prospective users should clarify its intended uses or *purposes*. Although every possible use may not be anticipated, main categories of purposes can generally be specified. For instance, the purpose might be stated as, "aiding in the making of short-range operational decisions pertaining to inventory and production management." Alternatively, the key purpose might be, "to aid in making strategic decisions related to capital investments and the allocation of resources to major organizational units during the next year or years." Incidentally, financial models having these latter purposes are often known as budget models.

Once the purposes are established, model builders must consider various *approaches* to the design process. Thus, they may employ either a "top-down" approach or a "bottom-up" approach. The "top-down" approach assumes the broad perspective of top or corporate management. It begins with the objectives and strategies of the organization, searches for critical success factors and key quantitative performance measures, identifies the important decisions and related information needs, and, finally, determines the required elements (i.e., inputs, data base, and model relationships and algorithms) necessary to accommodate the above. The "bottom-up" approach, on the other hand, assumes the perspective of managers at the operational level. It focuses upon operational details within a designated range of activities.

Next, the model builders must consider such features as scope and input/output modes. *Scope* is related to both the purpose and construction approach. If a model's purpose is to aid in tactical planning at the operational level, it is likely to be narrow in scope, especially if the modeling has been done by a single department. Conversely, if a model's purpose is to aid in strategic planning at the top management level, it may be quite comprehensive. In fact, it may encompass not only the organization's activities, but also such relevant aspects of the organization's environment as its customers and suppliers. Generally speaking, a model that has a comprehensive scope should be developed in a modular fashion, in order to prevent it from being unwieldy. Also, its construction is normally under the guidance of a corporate modeling group.

Several ***input/output modes*** must be weighed. Data may be entered and outputs obtained via the batch mode or the interactive mode. The interactive mode, which requires the availability of online terminals, has become by far the more popular choice in recent years. Furthermore, outputs may be obtained in a variety of visual modes or forms, including hardcopy reports, softcopy displays (i.e., visual displays on terminal screens), and tabular and graphical presentations.

Finally, input data and output information values can be represented in either of two modes: the deterministic or the probabilistic mode. The probabilistic mode, in which values are reflected as probability distributions, provides greater information content to managers because it explicitly expresses the uncertainty embodied in the data estimates. However, most current-day models provide deterministic values, perhaps because managers are uncomfortable with probabilistic concepts or do not have sufficient faith in outputs expressed in probabilistic terms.

Modeling Languages

Prior to the actual construction of a financial model, the model builders must choose a modeling language. This can be a critical choice, since languages vary widely in the ease with which they can be employed to construct, revise and manipulate models.

If the model builders are professional programmers, they may prefer a standard programming language such as BASIC, FORTRAN, RPG, COBOL, or APL. Most financial models of the 1960s and early 1970s were constructed by means of such languages as these. However, while these languages are appealing to programmers because of their familiarity and efficiency during execution, they have several drawbacks. First, they are a relatively time-consuming and costly means by which to construct models. Second, models constructed by means of such languages are inflexible; that is, they are difficult to modify to reflect changed conditions. Third, such models are not easily manipulated to show the results of changes in the values of key model factors. Fourth, the programmed models are not easily "read" or understood by non-programmers.

Since the mid-1970s, specialized financial planning or modeling languages have grown in popularity. Examples of such languages suitable for large computer systems are FORECAST, AUTOTAB, CUFFS, and IFPS. Other languages, such as DSS-F, have been developed recently for microcomputer systems. Financial modeling languages (often called financial modeling software packages) provide benefits that overcome the drawbacks of standard programming languages. They are easier to use in model construction, allowing corporate planners, managers and non-professional programmers to build their own models. Also, they present model builders with powerful commands that are related to the financial situation. Furthermore, financial modeling languages incorporate manipulation techniques that facilitate experimentation by managers and planners during the planning and decision-making processes. Finally, they enhance model flexibility, enabling users to easily incorporate updating changes.

Model Experimentation Techniques

Descriptions of the models used by the four Arizona organizations referred to a "what-if" capability. This manipulative or experimentation capability, in reality, embraces a series of techniques by which input data values may be varied. The simplest technique consists of varying the value of a single key factor, such as the sales volume, by a fixed amount or percentage from a base case value, then observing the changes in other key factors and criteria, such as the sales amount, gross profit on sales, and net profit.

More sophisticated experimentation techniques may be derived from the above simple technique. The single factor may be varied over several time periods in accordance with a formula. Thus, the sales volume may be varied over a 10-year period by means of an exponential smoothing formula, adaptive filtering technique, or a linear regression analysis. Alternatively, the single factor may be varied over a given range in percentage steps, with the percentage changes in the model criteria being observed. Since this technique describes the sensitivity of the criteria to specified changes in a key factor, it is called *sensitivity analysis.* A third extension consists of varying two or more key factors simultaneously, either for a single time peiod or date or over a series of time periods or successive dates. This experimentation technique is known as *simulation.*

Two additional experimentation techniques should be noted. *Goal seeking,* in effect a reverse "what-if" technique, consists of calculating the needed change in a key factor in order to produce a specified result in a criterion or another key factor. Thus, a manager is able to determine the sales volume required to produce X dollars of net profit.

Monte Carlo simulation, also known as risk analysis, involves the use of probabilistic values for the key input data factors. Through repeated simulation runs, randomly selected values for the respective factors are manipulated by the model to produce probability distributions that represent values for the criteria and remaining factors. For instance, probabilistic values for future product demands and such costs as labor and materials can be simulated to yield the net profit, expressed as a probability distribution.

Modeling Cost Elements

Both constructing and using a financial model entail major direct and indirect costs. These costs should be estimated and totaled before a manager decides whether or not to undertake a modeling effort.

The most significant *construction* cost consists of charges for a financial modeling software package, plus the salaries of programmers and planners who will employ the package to build the model. If a package is not acquired, significantly higher salary costs must be expected. Other construction costs relate to required hardware, such as interactive terminals with graphical capabilities; additional software, such as data base management systems; and additional salaries, such as those for data base administrators. These additional costs are usually difficult to estimate, since the described hardware, software and personnel will partially be employed in the operational aspects of the firm's information system.

The costs of *using* the financial model include the salaries of those people who prepare the documentation for the model and who train the managers in the use of the model. Continuing hardware charges relate to the lease of communications facilities, the lease or depreciation of terminals and disk storage, and the cost of paper for documentation and model printouts. An additional cost, managers' salaries during the period they are learning to use the model, should not be overlooked. (Supposedly this cost will be more than offset, however, by salary savings due to shorter decision-making time.)

WHY SOME MODELS FAIL

Certain highly publicized modeling projects (e.g., projects at Sun Oil Co. and Pillsbury) have failed. Model builders would be prudent to consider the most important reasons for failure:

1. The planning process has not been well established beforehand. Financial models mirror, at least in part, the planning and budgeting processes of an organization. If these processes and their outputs are not highly formalized and tested under fire, model builders are likely to face severe difficulties in developing formalized models.
2. The managers and other prospective users of a model have not been actively involved in its construction. Unless users actively participate in developing a financial model, they will not understand it and will tend to mistrust its findings. Also, professional model builders cannot be as aware of the organization's objectives, operations, and financial relationships as the managers, accountants, and other users. Consequently, a model built exclusively by such builders is likely to lose touch at some point with the reality of the process or problem situation.
3. The finalized model has become highly detailed and complex, perhaps even encompassing all of an organization's operational activities and relationships. While an integrated structure of this character (sometimes called a full-scale corporate model) sounds appealing, it can become a dinosaur. It requires a lengthy period of construction by professional model builders and is extremely difficult to validate and keep up-to-date. Furthermore, the model has a voracious appetite for data, which places severe demands upon the data processing system.

CONCLUSIONS

The pitfalls of model construction point to guidelines that can be successfully used by managers and others.

Before a financial modeling project is approved, management should review the organization's objectives and planning process. Where necessary, objectives should be clarified and the planning process (and its outputs) formalized. Managers and other prospective users should be deeply involved in the model building process. Not only does this approach ensure that the resulting model will be more realistic, but it advances the managers' understanding of both the model *and* the problem situation or process.

At the outset, a simple model, perhaps of narrow scope, should be built. As experience is gained, the model can be enriched with more detailed relationships and expanded in scope. In addition, other models can be built and linked to the first model, resulting in a connected set of sub-models or modules. Each of the modules is more easily kept up-to-date than one monolithic model.

If these modeling guidelines are followed, and if adequate system support features, such as terminals and online data bases, are provided, an organization should witness significant improvement in the quality and timeliness of its managerial decisions.

J.W. Bryant (ed.), *Financial Modelling in Corporate Management* (New York: John Wiley & Sons, Inc., 1982).

H.I. Meyer, *Corporate Financial Planning Models* (New York: John Wiley & Sons, Inc., 1977).

Thomas H. Naylor (ed.), *Simulation Models in Corporate Planning* (New York: Praeger Publishers, Inc., 1979).

Airline Deregulation and Service To Small Communities

MARTIN T. FARRIS
KENNETH G. BRUNO

The Airline Deregulation Act of 1978, designed to free the airlines of the restrictive shackles of federal regulation, has spawned dramatic changes in the industry during the past five years. The "phase-in" approach of less and less government control each year will culminate in 1985 when the Civil Aeronautics Board itself ceases to function.

The act established a policy of placing "maximum reliance on competitive market forces and on actual potential competition . . ."[1] This increased competition within the industry has led to significant changes. On a system-wide basis, most major carriers have reduced their schedules and trimmed their work forces in order to remain competitive. In addition, the act has resulted in major route reshuffling as carriers have scrambled to drop less profitable routes, reassigning crews and aircraft, in hopes of getting a share of the lucrative transcontinental and sunbelt routes.

This increased competition has resulted in a mixed bag of benefits and hardships for the flying consumer. Service has been decreased to some points, while it has been increased to others. Air service to Phoenix, for example, has risen dramatically, since Arizona is considered a desirable market by the airlines. Phoenix Sky Harbor International Airport is currently served by 20 carriers, compared to only eight in 1978 (see Table 1). Air carrier operations have increased 68 percent at the Phoenix airport during the last five years.[2]

The new competition has also led to rate wars that dramatically decrease airfares between large traffic-generating points; at the same time, rates have increased between less-frequented cities.

In February 1983, the Airport Operators' Council International discussed with Senator Mark Andrews, R-N.D., the establishment of a presidential commission to look at deregulation's major problems. Included as a major problem was the reduction in service to small communities.[3] The purpose of this article is to provide a historical perspective on the airline industry's service to small communities and to consider the impact of deregulation on the quantity and quality of this service.

THE AIRLINES BEFORE DEREGULATION

Three interrelated factors influenced the development of the airline industry prior to deregulation: industry structure, aircraft technology, and public policy toward small communities.

Airline deregulation has caused dramatic changes in the industry during the past five years, including the withdrawal of major airlines from many small communities. This article examines the quantity and quality of replacement service, usually provided by small commuter carriers.

Martin T. Farris is Professor of Transportation in the College of Business Administration, Arizona State University. Kenneth G. Bruno is the Aviation Field Representative for the Aeronautics Division of the Arizona Department of Transportation.

TABLE 1
AIRLINES SERVING PHOENIX SKY HARBOR INTERNATIONAL AIRPORT

1978

American
Cochise
Continental
Delta
Frontier
Hughes Air West
Trans World
Western

1983

American
America West
Continental
Delta
Eastern
Frontier
Golden Pacific
Havasu
Northwest Orient
Pacific Southwest
Republic
Skywest
Southwest
Sun Aire
Sun West
Trans World
United
USAir
Wien Air Alaska
Western

Source: Official Airline Guide, Oct. 1, 1978 and Jan. 1, 1983

Airline Industry Structure Under Regulation

The airline industry was regulated in 1938, following a decade of political turmoil. The Civil Aeronautics Act sought to ensure the survival of the existing carriers and, therefore, the development of a reliable air transportation system. Pricing, entry/exit restrictions and route authority were controlled by the Civil Aeronautics Board (CAB). Routes were contracted in order to provide airmail service between points. In those early years, the mail contract was a carrier's main source of revenue, while passengers were merely included as a means of filling the remaining space on board. Routes tended to follow the major rail lines of the time, with airlines stopping at almost any location that had a medium-size population and a post office.[4]

Under regulation, no scheduled commercial carrier could operate without a Certificate of Public Convenience and Necessity. In 1938, the CAB granted certificates to 16 carriers, under grandfather provisions, and these became known as "trunkline carriers." No other trunk carriers were ever certified.

After World War II, the CAB sought to enhance the air transportation system by experimenting with "feeder" airlines that would supply new traffic to the trunks. The original trunk carriers were consolidating their routes and introducing larger equipment. The 20 new "local service carriers" were granted temporary certificates. The CAB specified that at least one end of each city-pair served by these carriers would be of less than 25,000 population.[5]

In 1952, the CAB enacted new regulations, allowing regularly scheduled flights by operators of aircraft of less than 12,500 pounds and with a passenger capacity of 18 or less. This third level of air carriers, known as commuters, were allowed to operate without Certificates of Public Convenience and Necessity.[6] However, they were required to have FAA Air Taxi Certificates. By the late 1970s, mergers had reduced the number of trunks to 11 and local service carriers to nine. More than 280 commuter carriers were operating by 1978.

Aircraft Technology

Early airliners were primarily designed to carry mail. When seats were introduced, an aircraft usually had less than 10 seats. These aircraft required frequent fuel and repair stops. During the 1930s, a sleek new design was introduced: the Douglas DC-3. Considered a technical marvel, the DC-3 featured better reliability, longer range, and 24 seats. After World War II, trunk carriers phased out the DC-3, but local service carriers continued to use "the workhorse" through the 1950s. The DC-3 was replaced by a series of aircraft, each designed to carry more passengers over longer stage-lengths (miles between stops).

The desire to carry more passengers on each aircraft was enhanced by several cost considerations. First, the most costly segments of any flight are the takeoff and the climb-out, when fuel consumption is highest and engine wear and tear is greatest. Once at cruising altitude, these factors are greatly reduced. Next, within limits, crew costs are fixed on any given flight. Hence, the more passengers carried, the lower the per-passenger crew costs. Likewise, many ground operation costs are fixed, so that increased productivity comes with more frequent flights of planes that have most of the seats filled.

Larger and heavier aircraft were designed. They required longer, stronger, and wider runways and more extensive terminal facilities. All of these factors combined to make it economically impractical for the large carriers to serve the small passenger loads of many communities.[7]

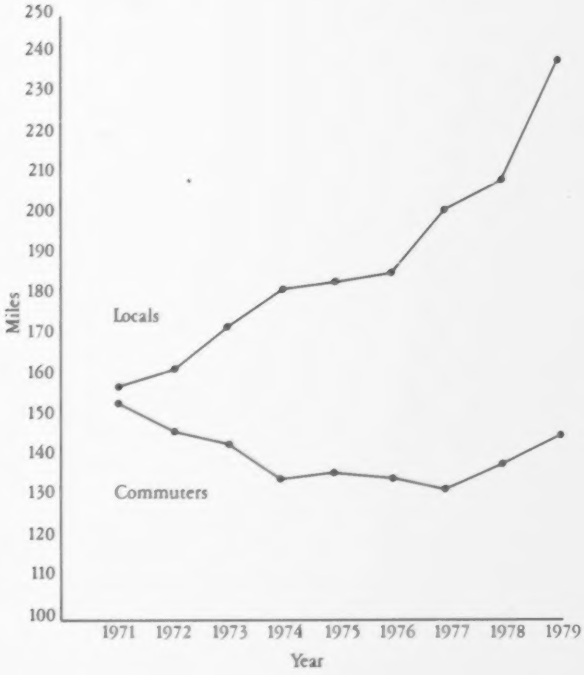
Public Policy Toward Small Communities

By the late 1970s, the trunk carriers had already abandoned most small communities. Local service carriers (also known as regionals) replaced the trunks, utilizing aircraft in the 50-seat range. Boardings of at least 50 percent of the aircraft's seating capacity were usually needed to make a flight profitable. This "load factor" wasn't occurring.

In short-haul markets, trunk and regional airlines were also subject to strong intermodal competition, especially from the auto.[8] Travel by car was often faster, given the infrequency of major airline schedules, and afforded the traveler greater flexibility.

As a result, small communities were often unable to provide the required passenger loads to make an airline route profitable. Carriers would ask for permission from the CAB to withdraw their service from such communities, but usually would be informed that they must continue to serve, acting in the capacity of a public servant. However, the CAB had the power to grant subsidies to carriers to help cover the costs of providing this service.[9] This policy, which began in the early 1950s, was called, "Public Service Revenues." These federal subsidies grew over time and exceeded $80 million a year prior to deregulation.

FIGURE I
AVERAGE NONSTOP STAGE LENGTHS
LOCAL SERVICE & COMMUTER AIRLINES



Source: For commuter air carrier data, see CAB *Commuter Airlines Traffic Statistics* (Washington D.C., CAB). For local service air carrier data, see USCAB *Air Carrier Traffic Statistics, June 1971-79,* (Washington D.C. CAB, 1971-79).

During the 1960s and 1970s, local service carriers began to purchase jet aircraft. As noted by Williamson, Cunningham and Singer, these aircraft contributed to a trend of increasing stage-lengths[10] (See Figure I). Intermediate stops became economically infeasible, even with federal subsidy assistance. Increasing fuel and labor costs resulted in an increasing financial responsibility for the government.

In an effort to reduce subsidy payments, the CAB instituted the "use-it-or-lose-it" program. This program made communities responsible for providing boardings. If a community did not provide at least five passenger boardings per day, a carrier could ask for a suspension of service. Unfortunately, the program was not evenly applied. By June 1967, the CAB had dropped some 101 small communities from the subsidy program; however, they allowed 54 communities to remain on subsidy even though they did not meet the passenger boarding criterion.[11]

During the late 1970s, the public's growing criticism of subsidies became a major factor influencing the call for deregulation.

SMALL COMMUNITY SERVICE UNDER DEREGULATION

Beginning in 1975, Congress initiated efforts to deregulate the airlines. An expected benefit was more service to small communities by replacement commuter carriers. This service would allow the large carriers to reschedule their aircraft for more efficient equipment usage[12] (the one benefit of deregulation that the air carriers favored before passage of the act). The removal of entry and exit restrictions invoked numerous objections, however, from the senators and representatives of sparsely populated states. They feared that many of the communities in their home districts would lose air service.[13] Debate continued until October 1978, when the new act was officially enacted, guaranteeing scheduled service to many small communities until 1988.

Provisions Pertaining to Small Community Service

Section 102(a)(8) of the new law states that a ". . . comprehensive and convenient system of continuous scheduled airline service for small communities and for isolated areas, with direct federal assistance where appropriate . . ." will be maintained.[14] With this policy statement, the majority of dissenting congressmen put their support behind the airline deregulation act.

This required service, referred to in the act as "essential air service," is guaranteed until October 24, 1988. The CAB specifies a minimum number of seats that are to be available per day, the destinations that are to be served, and the number of flights that are to be made per day. The minimum "essential air service" is specified as two daily round trips, five days per week. Although the board took several years to complete their determinations, they will still listen to state or community representatives regarding amendments or additional service points.

"Essential Service" Points in Arizona

In Arizona, seven cities qualify for "essential air service" under the act: Flagstaff, Page, Winslow, Yuma, Grand Canyon, Prescott and Kingman, the latter two being considered together. Nine carriers provide this service. Table 2 shows carriers, minimum number of roundtrips, minimum number and current number of seats provided, destination, and amount of annual subsidy, as of December 1983.[15] Three of the carriers receive federal subsidies totaling slightly more than $1 million annually.

The Arizona Department of Transportation has attempted to have Douglas designated as an eligible point for "essential air service." However, as of this writing, the CAB has denied the request.

Current Subsidy Rules

When a carrier desires to suspend service to a point designated as eligible to receive "essential air service,"

TABLE 2
ESSENTIAL AIR SERVICE POINTS IN ARIZONA

Community	*Current Carrier(s)*	*Minimum Number of Roundtrips*	*No. of Seats Min./Current*	*Destination*	*Annual Subsidy*
Flagstaff	Sun West Skywest	Two daily (nonstop)	80/117	Phoenix	0
Prescott & Kingman (consider together)	Golden Pacific	Two on weekends Two daily (M-F)	12/32	Phoenix (both) Las Vegas (Kingman)	$397,811
Page	Skywest	Two on weekends Two daily (M-F)	26/32	Phoenix Las Vegas (off season)	$333,192
Winslow	Sun West	Two on weekends Two daily (M-F)	6/32	Phoenix	$269,137
Yuma	Sun Aire Sun West	Two daily	80/162	Phoenix Los Angeles	0
Grand Canyon	Republic Air Cortez Air Nevada Las Vegas Airlines Scenic Airlines	Two daily	80/80	Las Vegas	0

Source: Arizona Department of Transportation, Aeronautics Division, December 1983 interview.

it must give the CAB a 90-day notice. During this period, the board seeks applications from other carriers that wish to provide service to the point. If a carrier can be found that meets "fit, willing and able" criteria and that states it can serve the route without subsidy, it will be designated to replace the incumbent carrier. If none can be found, the board will designate a carrier and specify a subsidy level. If no applications are received at all, the incumbent carrier will be required to continue service.[16]

If a replacement begins to serve a market, then is no longer able to provide the designated service level, the incumbent may be required to return to that community. Finally, since January 1, 1983, a carrier that desires to replace a subsidized carrier, and can do so without subsidy, is granted replacement rights to serve the destination. This is known as "subsidized route bumping." Incumbent carriers that have served a point for less than two years are protected from such action.

"Subsidized Route Bumping"

The CAB clarified how it will administer the "subsidized route bumping" provision when it ruled that the replacement carrier must provide better service, defining the improvement as either a minimum subsidy reduction of $50,000 or a 10 percent increase over the incumbent's number of trips per day. Other factors to be considered include efficiency of the aircraft to be used, relative financial strength of the competing carriers, and the views of the community being served.[17]

Replacement Service Illustration

Although the procedures are clear and the goal is to maintain "essential air service" to eligible small communities, the actual process does not always work that way. The following example will serve to illustrate the process.

In early 1979, following passage of the deregulation act, Frontier Airlines requested a suspension of service to Silver City and Alamagordo, New Mexico. The City of Silver City objected to the suspension, requesting a hearing. The board ordered Frontier to continue serving Silver City until a replacement carrier could be found.[18]

The board determined that Zia Airlines was fit and authorized replacement service to begin October 1, 1979.[19] However, it also required Frontier to maintain its ground personnel and equipment at the station for 90 days while it was assured of Zia's ability to provide the base level service of 32 seats each way per day.

In early 1980, new owners began extensive changes at Zia, including numerous schedule changes, in-flight service cuts (removal of flight attendants and beverages), and a name change. On February 26, 1980, Air New Mexico (Zia's new name) filed for subsidy payments with the board.[20] The board required continued operations and precise record keeping for a period of 30 days to establish the appropriate subsidy levels.

In late May, Air New Mexico abruptly terminated operations, without providing the board with the required 90-day notice, due to maintenance problems (it had no spare parts with which to repair its aircraft). Finally, in late July 1980, Air Midwest was chosen as the most "fit" of three new applicants for the service. All three had requested subsidies, with Air Midwest's request of $447,000 annually being granted.[21]

This example illustrates several weaknesses. First, although the board had determined that Zia was "fit" (it met the applicable safety and equipment requirements), the airline was not truly "able" to provide service over an extended period of time. Second, after Zia was forced to terminate service, Silver City had no designated carrier for two months. Finally, although the CAB had promised to force Frontier to return if Air New Mexico defaulted, it failed to do so.

IMPACT OF DEREGULATION

The impact of deregulation on small communities is widely debated. Unlike airline service between major points, very little rate discounting is found in service to small communities. Indeed, rates per mile of service are often much higher for these routes due to the economic factors noted earlier.

The results of a CAB study published in January 1983 indicate that service has improved slightly.[22] Before drawing specific conclusions or accepting the conclusions of any agency, however, one should consider air service from two viewpoints: quantity and quality.

Quantity of Air Service

The most common indicator of service used by the CAB is the number of flights available. As of May 1981, major carriers had withdrawn service from 74 communities, not all of which were small. However, nationally, frequency has increased since deregulation: actual departures have jumped 26 percent.

The conflicts arise when the scope of the statistics is reduced from the aggregate level to a statewide or community level. Table 3 shows deregulation's impact on air service by state. The table demonstrates how the criterion used for measuring service affects the quantity evaluation. For instance, the percent change in available seats (a 10.1 percent decrease nationally) depicts a more dismal picture of deregulation's effects than does the percent change in daily flights (a 10.9 percent increase nationally).

TABLE 3
ESSENTIAL AIR SERVICE (EAS) DEPARTURES AND SEATS, BY STATE
(December 1978 vs. December 1983)

State*	*Number of Departures Per Week*		*Percent Change*	*Number of Seats Per Week*		*Percent Change*
	12/1/78	*12/1/83*	*in Deps.*	*12/1/78*	*12/1/83*	*in Seats*
Alabama	260	203	– 21.9	10,650	9,751	– 8.4
Arizona	360	560	55.6	6,786	8,669	27.7
Arkansas	746	676	– 9.4	26,822	16,987	– 36.7
California	2,271	2,822	24.3	112,881	120,994	7.2
Colorado	414	372	– 10.1	18,637	14,328	– 23.1
Connecticut	480	929	93.5	7,769	17,728	128.2
Florida	357	816	128.6	30,880	36,452	18.0
Georgia	601	525	– 12.6	50,848	40,395	– 20.6
Idaho	255	419	64.3	15,292	8,672	– 43.3
Illinois	1,002	1,408	40.5	55,989	45,392	– 18.9
Indiana	451	265	– 41.2	7,267	6,644	– 8.6
Iowa	437	645	47.6	21,132	14,543	– 31.2
Kansas	859	701	– 18.4	19,757	14,358	– 27.3
Kentucky	131	239	82.4	6,044	3,882	– 35.8
Louisiana	618	750	21.4	46,839	36,261	– 22.6
Maine	747	765	2.4	33,215	33,232	0.1
Maryland	188	137	– 27.1	3,870	2,990	– 22.7
Massachusetts	732	1,190	62.6	14,004	16,772	19.8
Michigan	748	1,039	38.9	51,443	40,905	– 20.5
Minnesota	356	381	7.0	23,285	13,883	– 40.4
Mississippi	603	508	– 15.8	42,274	38,448	– 9.1
Missouri	522	498	– 4.6	24,670	17,389	– 29.5
Montana	95	132	38.9	1,725	1,406	– 18.5
Nebraska	490	559	14.1	17,644	17,647	—
Nevada	43	84	95.3	2,989	1,512	– 49.4
New Hampshire	414	467	12.8	10,261	9,360	– 8.8
New Jersey	253	486	92.1	5,640	26,629	372.1
New Mexico	314	446	42.0	10,941	8,973	– 18.0
New York	1,554	1,574	1.3	41,406	64,746	56.4
North Carolina	716	559	– 21.9	52,111	33,787	– 35.2
North Dakota	152	200	31.6	13,371	12,972	– 3.0
Ohio	339	300	– 11.5	20,859	13,604	– 34.8
Oklahoma	201	112	– 44.3	6,810	3,264	– 52.1
Oregon	297	292	– 1.7	14,768	15,659	6.0
Pennsylvania	788	582	– 26.1	19,294	16,776	– 13.1
South Carolina	267	327	22.5	19,785	24,427	23.5
South Dakota	267	234	– 12.4	18,304	8,756	– 52.2
Tennessee	97	36	– 62.9	1,826	636	– 65.2
Texas	1,287	1,200	– 6.8	44,334	40,908	– 7.7
Utah	135	97	– 28.1	2,275	1,430	– 37.1
Vermont	85	68	– 20.0	1,285	1,196	– 6.9
Virginia	585	674	15.2	46,890	34,287	– 26.9
Washington	831	676	– 18.7	21,457	19,694	– 8.2
West Virginia	571	499	– 12.6	22,953	14,204	– 38.1
Wisconsin	904	848	– 6.2	57,521	39,833	– 30.8
Wyoming	216	354	63.9	9,698	13,068	34.7
TOTAL - ALL EAS WITHIN 48 STATES	24,039	26,654	10.9	1,094,501	983,449	– 10.1

*Includes all states within Continental United States except Delaware and Rhode Island, which have no points with EAS definitions.

Source: Aviation Daily, February 9, 1984, p. 223.

Despite the protests of local officials, who usually point to the number of seats available as the true measure of service available, it is probably more appropriate to look at the number of departures. A major reason for deregulating the airlines was to reduce the inefficiencies of excess capacity. Table 3 indicates that, in the majority of states listed, the economic efficiency has improved (shown by the combination of more flights, with less excess seats).

On the negative side is the attitude of airline company managers who do not appear to view the small community as a permanent market. As soon as they are financially able, they look into purchasing larger aircraft, beginning the cycle of evolution again.

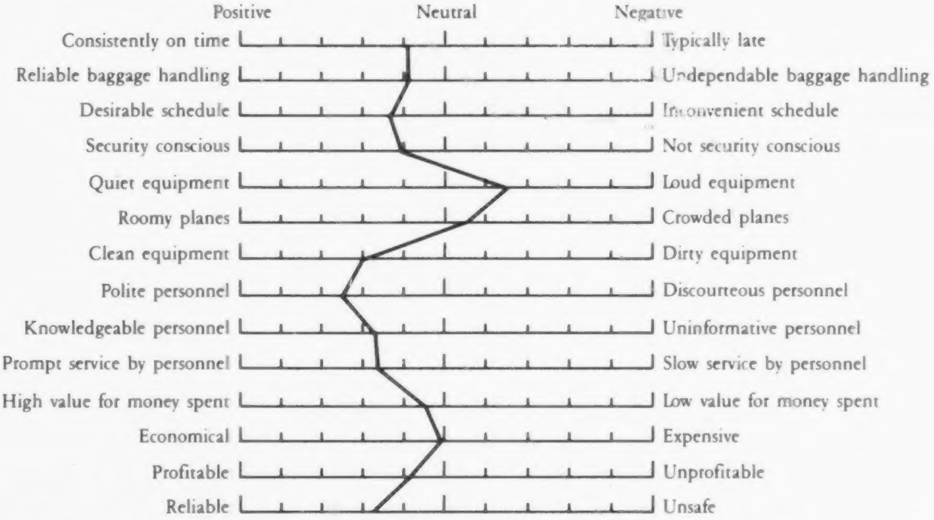
Quality of Air Service

Quality of air service is difficult to measure, and it was inevitable that replacement of the major carriers by commuter carriers would lead to a *perception* of reduced service. As the president of the South Dakota Chamber of Commerce stated, "We have gone from champagne flights on Western Airlines to flying on a small commuter or taking the car."[23]

Nevertheless, *customer perceptions* of commuter air carriers are an important qualitative factor. Inflight services that are available to passengers depend on aircraft size. If the aircraft has less than 19 seats, as most do, it does not require a flight attendant. Without a flight attendant, no inflight meals or beverages can be served. Also, the smaller aircraft have no restroom facilities. Furthermore, many commuter aircraft are not pressurized, requiring them to fly at 10,000 feet or less. The result is that flights are often in the middle of bad weather, rather than above it. Overall, passengers do not enjoy the benefits that a larger aircraft would provide.

A recent study of customer perceptions about commuter airlines noted CAB statistics that indicate passengers complain about commuter airlines six times more often than they do about trunk carriers.[24] The study sought to determine if these complaint statistics provide an accurate representation of passenger opinions about commuters. It consisted of inflight surveys of passengers on seven different commuter carriers, six of which were among the largest carriers. The results indicated that the majority of commuter passengers are traveling on business and that they are satisfied with the service they are receiving. They find commuter aircraft loud and noisy, however. Results of the survey are shown in Figure II.

FIGURE II
COMMUTER AIRLINES: MEAN VALUES FOR SELECTED VARIABLES



Source: J. Richard Jones and Sheila I. Cocke, "A Performance Evaluation of Commuter Airlines: The Passengers' View," *Proceedings, Transportation Research Forum,* Vol. 22 (1981): 248.

This study is limited by the diversity of airlines that are classified as commuters. A commuter might operate a small, single-engine aircraft, or it might use a large 30-to-40-passenger aircraft. As six of the surveyed carriers were from the large carrier category, some of which resemble small regionals, passengers would probably react more favorably.

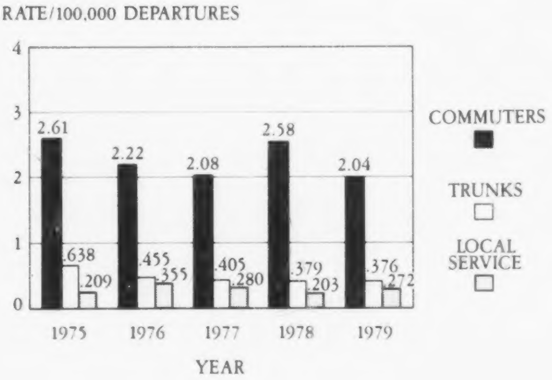
Another qualitative factor is *commuter safety*. More than 360 communities receive their only air service from commuter airlines.[25] Between 1978 and 1980, commuters grew more than 26.8 percent.[26] This phenomenal growth led many operators to cut corners with safety. In early 1980, the issue reached national attention after several fatal accidents in the northeast.[27] Operators were accused of forcing their crews to operate in violation of federal regulations. Crew members reported that if they refused to fly, no matter what the reason, they were subject to being replaced.

A National Transportation Safety Board report in 1980 showed that flying on a commuter airline was much more dangerous than flying on a trunk or local service carrier (see Figure III).[28] The report indicated that commuter growth had not been adequately paced by FAA vigilence over safety matters. It found that regulations allowed operators to work crew members excessively, that training and experience requirements were inadequate for flying sophisticated aircraft, and that maintenance programs were not supervised properly. In response to these safety problems, the FAA completely overhauled Part 135 of the Federal Aviation Regulations, under which commuters operate. In 1982, the new regulations contributed to the lowest recorded accident rate for commuters since record keeping began in 1975[29] (see Figure IV).

Questions regarding commuter safety arose again, however, following the October 11, 1983, crash of an Air Illinois aircraft. Testimony presented before the National Transportation Safety Board indicated numerous inconsistencies in Air Illinois maintenance procedures. Furthermore, congressional concern is again building regarding the FAA's inspection procedures and recent desire to

FIGURE III

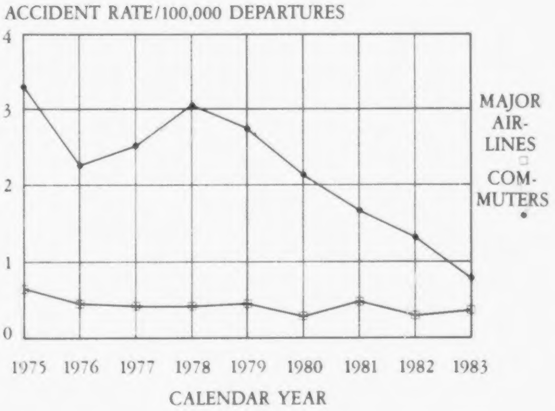
ACCIDENT TRENDS OF SCHEDULED AIRLINES (COMMUTER, TRUNK & LOCAL SERVICE AIR CARRIERS)



Source: NTSB Study, Commuter Airline Safety, NTSB-AAS-80-1

FIGURE IV

AIRLINE ACCIDENT TRENDS
1975-1983



Source: National Transportation Safety Board Bulletin #SB-3, January 12, 1984 reduce the number of air carrier inspectors.[30] As a result, commuter safety will probably continue to be an issue of major concern to small communities.

Subsidy Trends

Current subsidy levels are a little more than half their level in 1978[31] (see Table 4), reflecting the improved efficiency of small aircraft and the lower costs of providing essential air service. Section 406 subsidies, those paid to the former local service airlines, expired Jan. 1, 1983.[32] Section 419, which took effect Jan. 1, 1979, grants subsidies that specifically guarantee "essential air service."

TABLE 4
COMPARISON OF SUBSIDY
PAYMENTS TO U.S. AIRLINES

YEAR	*SECTION 406* (millions)	*SECTION 419* (millions)
1976	$72.5	——
1977	82.2	——
1978	73.9	——
1979	72.1	0.5
1980	80.1	9.0
1981	106.7	15.0
1982	55.1	26.0
1983 (estimated)	13.5*	39.8

*While Section 406 expired Jan. 1, 1983, Congress appropriated a special fund to be equally distributed to the former recipients of Section 406 funds.

Source: 1982 Annual Report, Regional/Commuter Airline Industry, Regional Airline Association, Washington, D.C., June 1983, p. 41.

CONCLUSIONS AND RECOMMENDATIONS

The few studies that have addressed the impact of airline deregulation on small communities indicate that the "essential air service" provisions of the Airline Deregulation Act of 1978 have maintained service frequency. Commuter airlines have picked up service to most communities that had lost major carrier service after deregulation. For this system to work, however, the government has had to continue paying subsidies to carriers.

When the subsidy provisions expire in October 1988, what will happen to community service? Initially, the subsidy program will probably be continued on the same or smaller scale (the political environment would not permit the abrupt ending of subsidies since too many communities would be affected at one time). Eventually, however, a system must be developed for determining whether or not a community really requires air service.

One possible system would take advantage of the various gravity models and demand studies that were developed and used by regulatory authorities during the days of regulation to grant Certificates of Public Convenience and Necessity to trunkline and regional carriers. These devices could be adopted to establish levels of demand for air service to small communities. If a route furnished enough demand, moderate subsidies might be continued. As subsidy costs increased, however, it appears likely that some communities would lose their service.

Local chambers of commerce and municipal governments are also investigating potential actions for coping with the post-October 1988 period. Their options range from the performance of marketing functions for commuter airlines to the provision of direct subsidies.

For the present, the impact of deregulation appears positive. Carrier service is more economically efficient, with aircraft size matched more appropriately to the passenger loads that are expected. Quality of service is down, as measured by seats available, inflight services offered, passenger comfort and accident rates. However, the majority of passengers are coping with these reductions and appear satisfied. With the shakeout of weaker carriers, service is gradually improving.

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[1] Public Law No. 95-504, 92 Stat. 1705 (1978).

[2] Rick Martinez, Public Information, Phoenix Sky Harbor International Airport, Phoenix, Arizona. Interview, February 16, 1984.

[3] "Panel Urged on Deregulation Problems," *Aviation Week and Space Technology*, Vol. 118, No. 18 (Feb. 21, 1983): 34.

[4] Ruth M. Reinhold, *Sky Pioneering* (Tucson, Ariz.: The University of Arizona Press, 1982): 158.

[5] Robert M. Kane and Allan D. Voss, *Air Transportation*, 5th Edition (Dubuque, Iowa: Kendall/Hunt Publishing, 1975): 123-130.

[6] James Hunsaker, "The Domestic 30- to 60-Seat Commuter Aircraft Market: A Supply and Demand Analysis," *Proceedings, Transportation Research Forum*, Vol. 23, No. 1 (1982): 427.

[7] Adib Kanafani, "Aircraft Technology and Network Structure in Short-Haul Air Transportation," *Transportation Research*, Vol. 15A (1981): 307.

[8] Ibid, p. 305.

[9] Ronald D. Scott and Martin T. Farris, "Airline Subsidies in the United States," *Transportation Journal*, Vol. 13, No. 4 (Summer 1974): 25-33.

[10] Kenneth C. Williamson, Lawrence F. Cunningham, and Marc G. Singer, "Scheduled Passenger Air Service to Small Communities: A Role for State and Local Governments," *Transportation Journal* (Summer 1982): 29-30.

[11] Ibid, p. 27.

[12] David B. Vellenga and Benjamin J. Allen, "Airline Deregulation and Its Impact on Air Service to Selected Midwestern States," *Proceedings, Transportation Research Forum,* Vol. 21, No. 1 (1980): 137.

[13] Dorothy D. Sandell, "Deregulation—Has It Finally Arrived? The Airline Deregulation Act of 1978," *Journal of Air Law and Commerce,* Vol. 44, No. 4 (1979): 814.

[14] Public Law No. 95-504, 92 Stat. 1705 (1978), Section 102.

[15] Arizona Department of Transportation, Aeronautics Division, December 1983.

[16] Public Law No. 95-504, Section 419.

[17] "CAB Allows Subsidized Route Bumping," *Aviation Week and Space Technology* (January 17, 1983): 39.

[18] "Frontier Flights Continue in N.M.," *El Paso Times* (June 28, 1979): 1B.

[19] "Zia's First," *Silver City Daily Press* (October 1, 1979): 1.

[20] "Base-Level Air Service Tagged for N.M. Sites," *El Paso Times* (March 22, 1980): 1A.

[21] Jacqui Tillman, "Aeronautics Board Approves County Air Service," *Silver City Daily Press* (July 17, 1980): 1.

[22] "Small Community Service Found Improved," *Aviation Week and Space Technology* (January 31, 1983): 35.

[23] James Ott, "Upper Midwest Mulls Service Options," *Aviation Week and Space Technology* (July 12, 1982): 36.

[24] J. Richard Jones and Sheila I. Cocke, "A Performance Evaluation of Commuter Airlines: The Passenger's View," *Proceedings, Transportation Research Forum,* Vol. 22, No. 1 (1981): 248.

[25] *Commuter Airline Safety, 1970-1979* (Washington, D.C.: National Transportation Safety Board, NTSB-AAS-80-1, 1980): 12.

[26] Jones and Cocke: 248.

[27] Ernest Holsendolph, "Use of Commuter Airlines Grows, as Does Crash Rate," *New York Times* (June 21, 1980): 1.

[28] *Commuter Airline Safety, 1970-1979:* 13.

[29] David M. North, "Fatal Airline Accidents Rose in 1982," *Aviation Week and Space Technology* (March 7, 1983): 58.

[30] James Ott, "Groundings Fuel Debate on Safety," *Aviation Week and Space Technology* (January 2, 1984): 26.

[31] *1982 Annual Report, Regional/Commuter Airline Industry* (Washington, D.C.: Regional Airline Association, June 1983): 41.

[32] While Section 406 expired 1/1/83, Congress appropriated a special fund to be equally distributed to the former recipients of Section 406 funds.

Arizona Construction Activity: Beyond Expectations in 1983

JAY Q. BUTLER

Because expectations of economic recovery during 1981 and 1982 had been dashed by the reality of continuing recession, concern permeated the economic outlook for 1983. Forecasters expressed cautious optimism for a modest recovery, based on lower interest rates, reduced inflation, and other general indicators. Their caution was due to the experiences of previous years, plus concern about the federal deficit and unemployment. The forecasters' lowered expectations, as it turns out, fell far short of the reality of economic recovery in 1983 (see tables throughout this report).

Total construction activity in Arizona during 1983 exceeded the 1979 record level of $2.6 billion, with the issuance of 105,618 building permits, valued at $3.6 billion. Compared to 1982, this level of activity represented a 36 percent increase in the number of building permits (from 77,389) and a 52 percent rise in dollar value (from $2.4 billion).

A very similar pattern existed in Maricopa County, with a record dollar value of $2.5 billion (previous record was $1.6 billion in 1978), which represented a 62 percent increase over the $1.5 billion reported in 1982. Such strong acceleration in construction activity demonstrates the resilience and growth potential of this sector of the Arizona economy.

Jay Q. Butler is Associate Professor of Real Estate in the College of Business Administration, Arizona State University. He also serves as a faculty research associate in the ASU Bureau of Business and Economic Research and is Director of the Arizona Real Estate Institute.

SECTORAL ACTIVITY

The largest concentration of construction activity continued to be in the metropolitan counties, Maricopa and Pima. Maricopa County represented 61 percent of the total recorded permits and 69 percent of the total dollar value, while Pima County recorded 16 percent of the total permit activity and 17 percent of the total dollar value. Table 1 provides a review of key sector construction activity.

Residential

Maricopa County. Typically, the single family sector leads the real estate recovery. Although this sector was strong in 1983, with a 56 percent increase over 1982 (from 13,380 to 20,961 single family permits), the 1983 level was only the fourth highest ever recorded in Maricopa County. The surge in this sector was due not to any dramatic change in interest rates but to both the stability of interest rates (see Figure I) and a generally improving economy that provided the needed confidence for consumers to make home purchases.

As presented in Table 2, single family activity was relatively stable in response to a positive economic environment. Although interest rates were still fairly high, at 13 percent, homebuilders were able to provide better mortgage terms through innovative financing arrangements such as buydowns and mortgage bond programs. Unlike the real estate markets of previous recovery years, the market in 1983 required considerable effort and innovation to provide the needed product at affordable prices.

TABLE 1
KEY SECTOR CONSTRUCTION ACTIVITY
1982 and 1983

			COMMERCIAL							
	SINGLE FAMILY		*APARTMENTS*[a]		*OFFICE BUILDINGS*[b]		*RETAIL STORES*[c]		*INDUSTRIAL*	
	Number of Permits	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
Maricopa County										
1983	20,961	1,085,022,005	1,643	507,362,769	293	185,605,010	656	131,715,327	447	89,365,043
1982	13,380	544,471,613	788	219,089,144	240	134,160,100	325	79,941,394	401	109,797,829
Pima County										
1983	4,477	240,689,501	91	164,207,260	80	40,297,148	74	33,173,623	15	5,073,500
1982	2,548	138,582,012	59	76,556,818	67	26,688,727	65	18,129,085	15	10,205,055
Rest of Arizona										
1983	5,496	232,331,110	55	22,315,158	146	13,703,512	253	24,663,762	112	19,111,800
1982	3,835	156,155,896	87	28,159,188	97	5,380,227	303	41,648,837	76	25,263,973
Arizona Total										
1983	30,934	1,558,044,616	1,789	693,885,187	519	239,605,670	983	189,552,712	574	113,550,343
1982	19,763	839,209,521	934	323,805,150	404	166,229,504	693	139,719,316	492	145,266,857

[a] Five or more units.
[b] Office, bank, medical and professional buildings.
[c] Shopping centers and other mercantile buildings.

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

TABLE 2
SINGLE FAMILY PERMIT ACTIVITY BY QUARTERS FOR 1983
(Maricopa County)

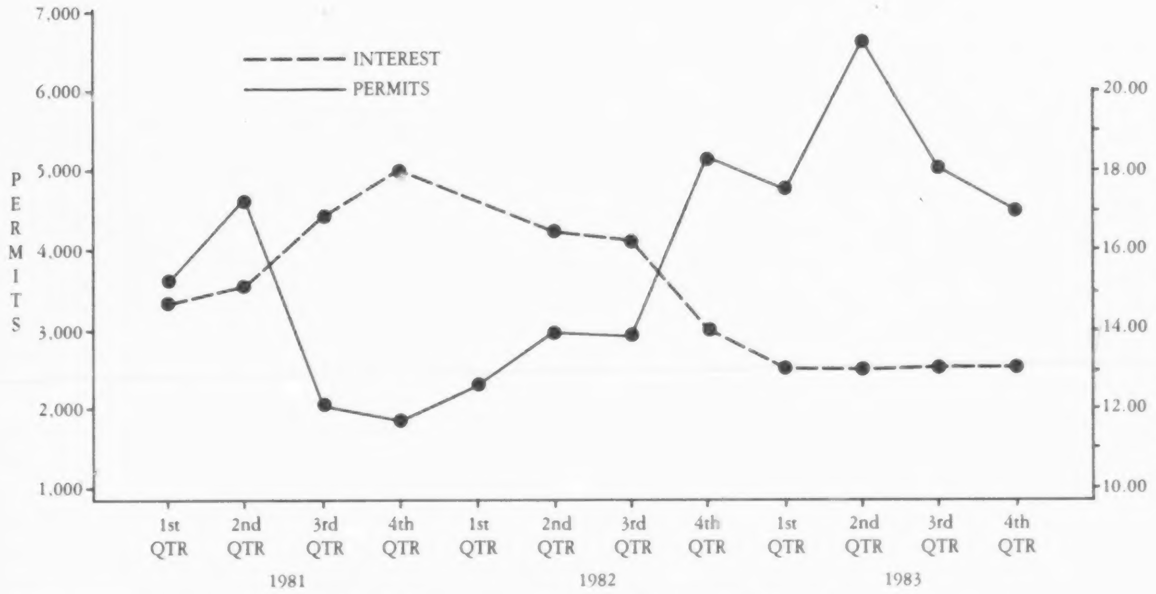
	Number of Permits	*Dollar Value (millions)*
First Quarter	4,670	$ 188
Second Quarter	6,670	325
Third Quarter	5,070	283
Fourth Quarter	4,551	288
TOTALS	20,961	1,084

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

To sustain recovery, sales activity must also improve. For 1983, 8,894 single family, detached units were sold, with a median value of $70,000 (in 1982, only 3,392 units were sold, with a median value of $65,504). Another 2,309 townhouse/condominium homes were sold in 1983, with a median value of $51,885 (in contrast to 1982's 1,192 homes, with a median value of $44,872). Sales activity increased significantly, while home values rose only slightly. Much of the increase in values can be attributed to the accelerating sales of more expensive homes. During the fourth quarter, 1983, 38 percent of the sales were homes valued at more than $80,000, compared to only 18 percent in that price category during the first quarter, 1983. More detail on sales activity in Maricopa County is contained in a table at the end of this article.

Rest of Arizona. Pima County reported a jump of 76 percent in single family home building activity, with 4,477 permits issued during 1983, compared to 2,548 permits issued in 1982. Mobile home activity increased from 2,042 permits in 1982 to 2,477 permits in 1983. This sec-

FIGURE I
SINGLE FAMILY PERMITS ISSUED AND
INTEREST RATE ACTIVITY
1981-1983



Source: News, Federal Home Loan Bank Board and *Arizona Business*, Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

tor is of increasing importance in providing low-cost housing, even in Maricopa County, where activity expanded from 1,414 permits in 1982, to 1,842 permits in 1983.

In the non-metropolitan counties, the single family sector posted a 43 percent increase, moving from 3,835 permits in 1982 to 5,496 permits in 1983. This improvement is significant, given the adverse economic conditions in the mining and forest products industries. Much of the increased activity occurred in the counties of Cochise (407 permits in 1982 to 548 permits in 1983 with Sierra Vista recording 359 permits); Coconino (489 permits in 1982 to 851 permits in 1983); Mohave (456 permits in 1982 to 915 permits in 1983); and Yavapai (902 permits in 1982 to 1,342 permits in 1983). The other counties reported either declining activity (Apache, Graham and Greenlee) or slight increases, exemplified by Gila (268 permits in 1982 to 291 permits in 1983), Navajo (424 permits in 1982 to 493 permits in 1983), and Pinal (406 permits in 1982 to 449 permits in 1983).

The mobile home sector is very important in the non-metropolitan counties, with the 5,113 permits issued during 1983 representing 54 percent of all mobile home permits issued in the state; the 1983 total was also a 12 percent increase over the 4,568 permits issued in 1982. Mobile home activity exceeded single family homebuilding activity in the counties of Yuma, Pinal, Mohave, La Paz, and Graham. However, a mobile home permit does not necessarily mean the addition of a new housing unit; it may simply record the movement of units.

Commercial

Maricopa County. Depending on the policy of each city, the multifamily sector (5 or more housing units) can include both apartment projects and condominium projects. Although most cities do not distinguish between the two, apartment projects tend to predominate. The construction recovery was led by the multifamily sector, which moved from 788 permits, worth $209 million (approximately 9,785 housing units), in 1982; to 1,643 permits, valued at $507 million (approximately 21,400 housing units), in 1983.

The three-to-four unit sector continued to expand, moving from 415 permits in 1982 to 634 permits in 1983, for a 52 percent increase. The duplex sector posted a 148 percent gain (160 permits in 1982 to 398 permits in 1983). Much of the increased activity was located in Mesa, with 178 duplex permits (45 percent of county total) and 158 three-to-four family permits (25 percent of county total). Phoenix issued 139 duplex permits (35 percent of county total) and 321 three-to-four family permits (51 percent of county total). Both types of housing projects tend to be grouped together to fill in land area with a dense and unified form of development that is affordable to young families, retired couples and winter residents.

After several years of decline, construction activity in the retail sector finally picked up during 1983, stimulated by the development of new housing subdivisions and increased consumer spending. In addition, the rehabilitation of existing shopping centers and movement of tenants thereto began to have a positive effect on the market. The 656 permits issued in 1983 ($132 million) contrasted to the 1982 level of 325 permits ($80 million).

After a one-year decline, the office building sector was also rejuvenated, jumping from 240 permits ($134 million) in 1982 to 293 permits ($186 million) in 1983. The basic impetus was greater corporate confidence in the future of the economy. The city of Scottsdale continued to be active during 1983, with 44 permits ($30 million), while Phoenix recorded 165 permits ($22 million), especially in the uptown area and the Camelback corridor. Other areas of activity are Chandler (9 permits at $6 million), Glendale (20 permits at $6 million), and Mesa (27 permits at $15 million). The ongoing movement of regional offices to the Phoenix metropolitan area, availability of funding through financial institutions and syndications, and expansion of local firms should continue to stimulate an improving office building sector.

Rest of Arizona. As shown in Table 1, Pima County performed strongly in all areas of commercial construction activity during 1983. In the multifamily sector, a record of 91 permits ($164 million) far exceeded the 1982 level of 59 permits ($77 million). In the city of Tucson, the value of office building projects increased 57 percent from 44 permits ($21 million) in 1982 to 63 permits ($34 million) in 1983. Tucson's retail sector also expanded from 48 permits ($12 million) in 1982 to 60 permits ($30 million) in 1983.

In the non-metropolitan counties, only the office building sector showed improvement, increasing from 97 permits ($5 million) to 146 permits ($14 million). Areas of activity included Flagstaff (11 permits at $2 million), Mohave County (32 permits at $2 million), Casa Grande (12 permits at $3 million), Prescott (6 permits at $1 million), and Yuma (5 permits at $1 million).

The multifamily sector declined from 87 permits ($28 million) in 1982 to 55 permits ($22 million) in 1983, with much of the activity occurring in the cities of Sierra Vista (7 permits at $6 million), Lake Havasu City (3 permits at $1 million), Mohave Valley North (7 permits at $2 million), Winslow (1 permit at $1 million), and Casa Grande (7 permits at $2 million). In response to a weak economy and diminishing market opportunities, the retail sector declined from 303 permits ($42 million) in 1982 to 253 permits ($25 million) in 1983.

Industrial

Maricopa County. After several years of declining construction activity, the industrial sector showed signs of expansion in 1983. With most activity occurring during the last two quarters, the number of permits issued increased 11 percent from 401 permits in 1982 to 447 permits in 1983; their dollar value decreased 18 percent from $109 million in 1982 to $89 million in 1983. Much of the activity was the remodeling or expansion of existing industrial space, a positive sign that the market is beginning to improve. In an area where the future depends on economics, this is a very encouraging sign. The dominant area of industrial activity was Tempe, with 270 permits ($39 million), in comparison to 1982's activity of 213 permits ($40 million). Phoenix showed definite improvement, moving from 119 permits ($25 million) to 113 permits ($32 million). Other areas of activity were Mesa, with 22 permits ($9 million); Scottsdale, with 13 permits ($5 million); and Chandler, with 4 permits ($1 million).

Rest of Arizona. Industrial activity in Pima County declined, moving from projects worth $10 million (15 permits) to $5 million (15 permits). This sector has not been strong since 1979, when the IBM plant was constructed.

In the other Arizona counties, the industrial base is very limited; hence, any activity can have a profound impact. The number of permits increased 47 percent (76 permits in 1982 to 112 permits in 1983), while dollar value declined 32 percent ($25 million in 1982 to $19 million in 1983). Casa Grande continued to be a developing industrial area, with 4 permits ($10 million). Other areas of industrial development were Flagstaff (5 permits at $2 million), Yavapai County (32 permits at $1 million), and

Yuma County (12 permits at $2 million). Diversification of economic activity in the non-metropolitan counties is needed to create job opportunities and provide for balanced economic development throughout the state.

Other Sectors

This sector includes private construction activities, such as swimming pools and fences, and public projects, including schools and municipal buildings. The public sector is very important because it provides public facilities for a growing population.

In Maricopa County, the number of permits increased 53 percent (17,974 in 1982 to 27,548 permits in 1983), while dollar value expanded 16 percent ($253 million in 1982 to $295 million in 1983). Examples of specific areas are: churches (52 permits at $20 million), schools (55 permits at $21 million), and hospitals (17 permits at $14 million). In Pima County, permit activity increased from 5,325 in 1982 to 6,662 in 1983, while dollar value declined from $115 million in 1982 to $93 million in 1983. Areas of activity included churches (18 permits at $4 million) and hospitals (9 permits at $14 million).

This sector improved in the non-metropolitan counties, moving from 7,086 permits ($63 million) in 1982 to 7,892 permits ($74 million) in 1983. Examples of activity are a $6 million school project in Eagar, a $1 million church project in Greenlee County, two hospital permits ($2 million) in Mohave Valley North, and a $1 million hospital project in Casa Grande.

OUTLOOK FOR 1984

The keystone of the 1983 gains in Arizona's construction industry was not dramatic economic recovery but stability in interest rates and continuing improvements in inflation, unemployment and economic confidence. Most expectations for 1984 are for more of the same, resulting in a modest, rather than significant, upturn. It should be a year of sustained economic growth, with unemployment continuing to decline. Although inflation is expected to increase, it appears to be under control, with 5 percent to 6 percent likely. Retail sales have risen sharply and should further increase during 1984. Interest rates, while not declining, should be stable, allowing consumers to make logical debt decisions.

The fundamental concerns are international stability and the federal deficit. On the international scene, mounting crises could adversely affect the economy through restrictions on needed resources or monetary instability. The federal deficit has replaced inflation as the main specter looming over the recovery. The deficit affects capital availability and costs because the government must claim an increasing share of the limited investment pool. Even though these two items are of concern, most forecasters hold that they will not adversely influence the recovery through 1984.

The single family housing sector is expected to be as good, or even slightly better, than it was in 1983. The main stimuli are the consumer's recovered confidence in the economy and the builder's provision of innovative financial arrangements. The 1983 market was heavily influenced by the entry-level household, but the move-up market should continue to strengthen throughout 1984. Due to increased land and material costs, home prices are expected to increase during the year, at rates greater than in 1983.

As in 1982, the multifamily sector dominated the market. Much of the construction was supported by tax-oriented syndications. However, due to likely tax law changes and market restrictions, activity in this sector should be below last year's record. Even though single family activity will probably increase, the total housing count will decrease due to the decline in multifamily activity.

The office building and retail sectors should continue to improve in 1984. Several major office projects were announced in 1983 and should enter the construction phase in 1984. Retail action should continue to expand in the neighborhood and off-price retail (brand name goods at discount prices) sectors. Industrial buildings, especially smaller ones, are beginning to include more office functions. Furthermore, developers of industrial parks are exercising aesthetic control to include more amenity features.

Arizona has only begun to develop its economic base. Areas such as the Midwest and Texas offer increasingly stiff economic development competition. This state must be very careful to maintain and more aggressively market an environment that will induce business expansion and attract new firms. The future of Maricopa and Pima counties is in the areas of high technology, services and office functions. The non-metropolitan counties need to attract new retail stores, tourist-oriented businesses, and firms that prefer the rural environment. The future of any area is determined by its ability to develop an expanding economic base that will provide employment opportunities.

In January 1984, Phoenix Magazine, Inc., and the ASU Arizona Real Estate Institute surveyed the representatives of four real estate groups in Maricopa County: homebuilders, financial services (banks, savings and loan associations and mortgage bankers), real estate brokerages (commercial and residential), and "other" entities (appraisal, development, property management, and government). These groups expect year-end interest rates to be little different from current levels; however, respondents believe that inflation and apartment vacancy rates will increase significantly over current levels.

Table 3 presents the mode (most common) and the median (value of middle item in an ordered range) for each of the major industry sectors, as well as a consensus forecast. The relative closeness of the mode and median demonstrates a fairly consistent and narrow range of responses.

Respondents tended to believe that the Phoenix metropolitan real estate market will show gradual improvement throughout 1984. However, there was some disagreement concerning 1985, with 38 percent of the group depicting a year similar to 1984 and 27 percent saying that 1985 would be slower than 1984, especially in the latter months.

It is interesting to note that relative to the level of confidence in the future, 55 percent expect higher year-end interest rates—a contrast to the 20 percent level of the 1983 Outlook survey. Moreover, 70 percent of the 1984 group believe that inflation will increase, while only 26 percent expressed similar concern for 1983. A fundamental shift of opinion occurred as to whether the federal government's economic policy will lead to an improving economy: in last year's study, only 56 percent voiced confidence in the policy, as compared to 63 percent in the current survey.

More than 80 percent of the 1984 survey group felt that the local economy, new-home market, general real estate market, and their firm's activity would improve throughout 1984. This level of confidence was much higher than that expressed in previous surveys. With reference to the new-home market, the most common response (25 percent) was that new-home starts would be in the 25,000 to 30,000 range. However, 16 percent of the respondents indicated a range between 15,000 and 19,000, while another 18 percent selected the more-than-35,000 range.

Regarding new-home closings, respondents most typically chose the range from 20,000 to 24,999 (17 percent), with 11 percent selecting the 15,000 to 19,999 range, and 13 percent indicating the 25,000 to 29,999 range. In denoting strong beliefs in continuation of the housing recovery, almost 70 percent of the respondents noted levels of starts and closings above the levels achieved in 1983.

For the improvement of any market, participants must have confidence in the future. More than 70 percent of

TABLE 3
EXPECTED PERCENTAGE RATES FOR 1984 ECONOMIC INDICATORS

Economic Indicators	*Home-building*		*Financial Service*		*Real Estate Brokerage*		*Other*		*Consensus*	
	Mode	*Median*	*Mode*	*Median*	*Mode*	*Median*	*Mode*	*Median*	*Mode*	*Median*
Conventional mortgage rate	13.0	13.0	12.5	12.5	13.0	13.0	13.0	13.0	13.0	13.0
FHA mortgage rate	11.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Prime interest rate	11.0	10.5	10.0	10.0	10.0	10.5	11.0	11.0	10.0	10.6
Inflation rate (Phoenix)	6.0	6.0	4.0	5.0	5.0	5.1	5.0	6.0	6.0	5.5
Apartment vacancy rate	8.0	7.8	6.0	7.0	8.0	8.2	10.0	9.8	10.0	8.2
Commercial interest rate	13.0	13.2	13.0	12.6	14.0	13.0	14.0	13.5	13.0	13.0
Six-month Treasury Bill rate	9.0	9.2	8.7	8.5	9.0	9.0	10.0	9.8	9.0	9.3
Unemployment in Phoenix	7.0	7.0	7.0	6.9	7.0	7.0	6.0	7.0	7.0	7.0

Mode = most common response. Median = middle value in range.

Source: Survey conducted by the Arizona Real Estate Institute, College of Business Administration, Arizona State University, 1984.

the survey respondents believe that retail sales, consumer and business confidence, and the Phoenix economy and employment rate will improve during the year. More than 60 percent foresee the national economy and national employment rate improving throughout the year. In the 1984 survey, respondents expressed a higher level of confidence concerning the economy than ever had previously. Fewer than 5 percent of respondents in each category foresee conditions at the end of 1984 being worse than now. It appears that the surveyed group has very high expectations for 1984.

The respondents expect prices to increase to levels above those foreseen for 1983. The expected increases are in response to stronger market activity and to increasing inflation pressure. Last year, respondents were in agreement that new home prices, resale home prices, and land prices would each increase approximately 5 percent. The 1984 group expects increases in land prices and new home prices to be near 10 percent, while resale home prices increase about 5 percent. A very small number of respondents projected either no changes or decreases in the respective price levels.

Stability in an improving economy enhances the confidence of consumers and businesspeople alike. Confidence in one's economic future is the key ingredient for a continuing recovery. Currently, all signs point to a solid year of real estate activity.

Metropolitan Phoenix Real Estate Sales: Quarterly Report

FOURTH QUARTER, 1983

	SINGLE FAMILY			*TOWNHOUSE/CONDOMINIUM*			
	Median Sales Price						
	New	*Resale*	*Total*	*New*	*Resale*	*Total*	*Grand Total*
Annual, 1982	$65,000	$64,800	$64,900	$44,900	$59,800	$56,000	$63,500
First Quarter, 1983	65,600	64,000	64,500	45,600	59,900	53,000	63,000
Second Quarter, 1983	68,100	65,500	66,800	50,200	61,000	57,000	65,000
Third Quarter, 1983	71,400	68,000	69,000	52,200	60,000	57,200	67,500
Fourth Quarter, 1983	74,300	69,000	70,750	58,000	62,500	60,000	69,100
Annual, 1983	70,000	66,500	67,600	51,900	60,000	57,000	66,000
	Approximate Number of Sales						
Annual, 1982	3,390	23,640	27,030	1,190	4,030	5,220	32,250
First Quarter, 1983	1,760	6,900	8,660	540	1,030	1,570	10,230
Second Quarter, 1983	2,470	8,440	10,910	690	1,350	2,040	12,950
Third Quarter, 1983	2,770	9,340	12,110	680	1,210	1,890	14,000
Fourth Quarter, 1983	2,610	7,650	10,260	640	980	1,620	11,880
Annual, 1983	9,610	32,330	41,940	2,550	4,570	7,120	49,060

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University; from data supplied by Marketron Services, Inc., Phoenix.

Arizona New Housing Starts: Annual Report

ANNUAL, 1983

BUILDING PERMITS ISSUED

	One Family	*Mobile Homes*	*Duplex*	*3-4 Families*	*5 or More*	*Total Housing Units*
APACHE COUNTY	93	42	2	0	1	163
Eagar	43	15	0	0	0	58
St. Johns	4	23	0	0	1	51
Springerville	12	0	0	0	0	12
Unincorporated	34	4	2	0	0	42
COCHISE COUNTY	548	530	1	17	9	1,590
Benson	5	38	1	0	0	45
Bisbee	1	0	0	0	0	1
Douglas	5	0	0	0	0	5
Huachuca City	2	0	0	0	0	2
Sierra Vista	359	208	0	9	7	1,022
Tombstone	0	7	0	0	0	7
Unincorporated	174	258	0	8	2	487
Willcox	2	19	0	0	0	21
COCONINO COUNTY	851	513	7	11	3	1,450
Flagstaff	418	111	6	9	1	577
Fredonia	4	22	0	0	0	26
Page	25	135	1	2	0	166
Unincorporated	397	233	0	0	2	662
Williams	7	12	0	0	0	19
GILA COUNTY	291	218	1	4	0	526
Globe	0	0	0	0	0	0
Hayden	0	0	0	0	0	0
Miami	0	0	0	0	0	0
Payson	109	108	0	4	0	232
Unincorporated	182	110	1	0	0	294
GRAHAM COUNTY	33	152	0	1	0	189
Pima	4	9	0	0	0	13
Safford	4	1	0	1	0	9
Thatcher	6	21	0	0	0	27
Unincorporated	19	121	0	0	0	140
GREENLEE COUNTY	1	0	1	0	0	3
Clifton	0	0	0	0	0	0
Duncan	0	0	0	0	0	0
Unincorporated	1	0	1	0	0	3
LA PAZ COUNTY	29	132	0	0	0	161
Parker	3	1	0	0	0	4
Unincorporated	26	131	0	0	0	157
MARICOPA COUNTY	20,961	1,842	398	634	1,643	47,541
Avondale	21	96	0	14	23	303
Buckeye	3	7	0	0	0	10
Chandler	2,321	0	37	21	54	3,455
El Mirage	2	0	0	0	0	2
Gila Bend	2	0	0	0	1	7
Gilbert	350	0	0	5	112	1,330
Glendale	1,786	0	7	0	170	3,605
Goodyear	0	0	0	0	0	0
Guadalupe	N/R	N/R	N/R	N/R	N/R	N/R
Mesa	2,107	0	178	158	84	5,818
Paradise Valley	104	0	0	0	0	104
Peoria	1,182	0	27	0	3	1,468
Phoenix	6,216	257	139	321	785	17,801
Scottsdale	1,840	3	0	12	118	3,231
Surprise	8	3	0	0	0	11
Tempe	1,222	0	8	53	164	3,609
Tolleson	7	4	0	0	0	11
Unincorporated	3,761	1,472	0	43	127	6,695
Wickenburg	23	0	1	5	0	49
Youngtown	6	0	1	2	2	32
MOHAVE COUNTY	915	981	4	12	18	2,186
Kingman Area	65	4	2	1	6	146
Kingman Area	71	230	0	0	1	305
Lake Havasu City	283	8	0	0	3	351
Lake Havasu Area	3	27	0	0	0	30
Mohave Valley N.	320	366	1	11	7	828
Mohave Valley S.	97	220	1	0	1	324
Dolan Springs	21	40	0	0	0	61
Sacramento Valley	24	76	0	0	0	100
Mohave General	31	10	0	0	0	41
NAVAJO COUNTY	1493	251	0	1	2	796
Holbrook	3	0	0	0	1	27
Show Low	47	39	0	0	0	86
Snowflake	21	1	0	0	0	22
Taylor	6	14	0	0	0	20
Unincorporated	389	179	0	1	0	571
Winslow	27	18	0	0	1	70
PIMA COUNTY	4,477	2,477	97	39	91	14,789
Marana	1	30	0	0	0	31
Oro Valley	95	0	0	0	1	191
South Tucson	5	11	0	0	0	16
Tucson	984	531	97	39	72	7,640
Unincorporated	3,392	1,905	0	0	18	6,911
PINAL COUNTY	449	799	8	63	7	1,564
Apache Junction	115	402	2	34	0	663
Casa Grande	50	0	2	6	7	128
Coolidge	5	13	0	0	0	18
Eloy	1	12	0	0	0	13
Florence	1	50	0	0	0	51
Kearny	0	0	0	0	0	0
Mammoth	0	8	0	0	0	8
Superior	0	1	0	0	0	1
Unincorporated	277	313	4	23	0	682
SANTA CRUZ COUNTY	94	5	4	1	0	111
Nogales	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	2	5	1	0	0	9
Unincorporated	92	0	3	1	0	102
YAVAPAI COUNTY	1,342	878	19	15	11	2,591
Chino Valley	40	86	0	0	0	126
Clarkdale	16	5	0	0	0	21
Cottonwood	22	34	8	3	1	133
Jerome	0	0	0	0	0	0
Prescott	165	62	1	6	0	252
Prescott Valley	194	102	6	2	1	320
Unincorporated	905	589	4	4	9	1,739
YUMA COUNTY	357	612	4	3	4	1,031
Somerton	15	7	0	0	0	22
Unincorporated	115	443	0	0	0	558
Wellton	0	0	0	0	0	0
Yuma	227	162	4	3	4	451
Total, Maricopa Co., Annual, 1983	20,961	1,842	398	634	1,643	47,541
Total, Maricopa Co., Annual, 1982	13,380	1,414	160	415	788	26,559
Percent Change	56	30	148	52	108	79
Total, Arizona, Annual, 1983	30,934	9,432	546	801	1,789	74,691
Total, Arizona, Annual, 1982	19,763	7,701	252	525	934	44,664
Percent Change	56	22	116	52	91	67

N/R: No Report.

Arizona Building Permits: Annual Report

ANNUAL, 1983

	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value
APACHE COUNTY	177	3,530,947	20	696,000	0	0	24	5,914,944	221	10,141,891
Eagar	70	2,175,040	5	125,000	0	0	13	5,880,444	88	8,180,484
St. Johns	30	N/C	3	N/C	0	0	2	N/C	35	N/C
Springerville	26	N/C	5	N/C	0	0	5	N/C	36	N/C
Unincorporated	51	1,355,907	7	571,000	0	0	4	34,500	62	1,961,407
COCHISE COUNTY	1,499	33,037,296	103	19,535,011	8	540,000	1,167	5,023,630	2,777	58,135,937
Benson	79	621,121	0	0	0	0	80	128,349	159	749,470
Bisbee	50	249,500	1	26,000	1	20,000	12	305,500	64	601,000
Douglas	79	700,139	0	0	0	0	185	697,297	264	1,397,436
Huachuca City	41	181,505	1	7,000	0	0	8	152,887	50	341,392
Sierra Vista	651	16,639,933	39	13,522,897	2	195,000	653	1,680,923	1,345	32,038,753
Tombstone	19	17,210	21	32,000	0	0	78	411,633	118	460,843
Unincorporated	529	14,439,838	38	4,578,500	3	310,000	108	1,389,026	678	20,717,364
Willcox	51	188,050	3	1,368,614	2	15,000	43	258,015	99	1,829,679
COCONINO COUNTY	1,855	53,570,750	89	14,016,491	9	2,797,102	605	4,712,370	2,558	75,096,713
Flagstaff	687	30,118,443	47	6,733,862	5	2,513,500	426	3,539,823	1,165	42,905,628
Fredonia	33	122,000	2	21,350	1	N/C	11	24,000	47	167,350
Page	192	2,010,075	9	804,502	1	56,744	46	456,544	248	3,327,865
Unincorporated	890	20,475,246	30	6,441,777	2	226,858	69	548,685	991	27,692,566
Williams	53	844,986	1	15,000	0	0	53	143,318	107	1,003,304
GILA COUNTY	924	11,165,088	25	1,247,007	24	365,404	216	1,124,982	1,189	13,902,481
Globe	33	59,669	0	0	0	0	30	56,988	63	116,657
Hayden	2	500	2	12,500	0	0	18	7,750	22	20,750
Miami	13	31,078	0	0	2	4,000	5	7,000	20	42,078
Payson	429	2,974,417	5	671,047	20	346,404	67	249,183	521	4,241,051
Unincorporated	447	8,099,424	18	563,460	2	15,000	96	804,061	563	9,481,945
GRAHAM COUNTY	360	3,733,898	32	538,128	1	150,000	64	1,891,223	457	6,313,249
Pima	23	273,975	0	0	0	0	12	663,200	35	937,175
Safford	78	384,017	28	482,128	0	0	30	80,300	136	946,445
Thatcher	51	1,004,800	0	0	0	0	15	1,006,600	66	2,011,400
Unincorporated	208	2,071,106	4	56,000	1	150,000	7	141,123	220	2,418,229
GREENLEE COUNTY	8	84,500	2	10,000	0	0	5	1,857,000	15	1,951,500
Clifton	1	N/C	1	N/C	0	0	0	0	2	N/C
Duncan	0	0	0	0	0	0	2	14,000	2	14,000
Unincorporated	7	84,500	1	10,000	0	0	3	1,843,000	11	1,937,500
LA PAZ COUNTY	237	3,908,727	11	286,113	0	0	99	1,049,407	347	5,244,247
Parker	26	317,079	5	168,237	0	0	14	108,218	45	593,534
Unincorporated	211	3,591,648	6	117,876	0	0	85	941,189	302	4,650,713
MARICOPA COUNTY	31,995	1,158,298,000	3,577	927,189,283	447	89,365,043	27,548	294,907,540	63,567	2,469,759,866
Avondale	145	1,074,222	48	7,381,632	1	622,200	153	1,263,916	347	10,341,970
Buckeye	19	120,650	5	132,000	2	72,000	16	605,090	42	929,740
Chandler	2,693	113,629,477	89	43,692,699	4	1,701,750	2,619	13,567,145	5,405	172,591,071
El Mirage	48	246,650	7	834,800	1	107,425	2	800	58	1,189,675
Gila Bend	8	56,800	3	125,000	1	35,000	23	291,210	35	508,010
Gilbert	366	18,851,556	123	28,563,902	3	304,272	152	1,666,631	644	49,386,361
Glendale	2,137	79,066,978	300	52,729,664	0	0	2,924	18,357,126	5,361	150,153,768
Goodyear	6	6,250	1	67,000	5	364,562	59	112,433	71	550,245
Guadalupe	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Mesa	2,613	113,653,831	330	150,731,249	22	9,124,767	3,582	56,917,254	6,547	330,427,101
Paradise Valley	289	20,564,511	1	150,000	0	0	313	4,045,761	603	24,760,272
Peoria	1,430	31,692,539	17	6,209,870	5	183,160	1,137	2,879,575	2,589	40,965,144
Phoenix	9,575	358,104,287	1,438	378,897,683	113	31,741,710	6,538	131,548,645	17,664	900,292,325
Scottsdale	2,155	170,505,633	225	98,062,760	13	5,457,797	1,688	36,532,100	4,081	310,558,290
Surprise	39	669,805	6	3,028,608	0	0	44	380,668	89	4,079,081
Tempe	1,675	90,096,400	467	107,084,400	270	39,388,000	937	15,340,700	3,349	251,909,500
Tolleson	79	669,596	0	0	0	0	4	885,525	83	1,555,121
Unincorporated	8,668	158,195,873	504	47,435,816	5	220,000	7,341	10,027,071	16,518	215,878,760
Wickenburg	31	744,170	8	1,362,200	2	42,400	6	458,720	47	2,607,490
Youngtown	19	348,772	5	700,000	0	0	10	27,170	34	1,075,942

MOHAVE COUNTY	3,441	51,478,983	238	25,149,049	4	612,703	2,785	7,602,859	6,468	84,843,594
Kingman City	170	2,891,171	53	3,229,578	0	0	66	189,259	289	6,310,008
Kingman Area	584	5,762,954	32	1,776,260	0	0	497	779,673	1,113	8,318,887
Lake Havasu City	417	12,613,644	29	9,475,401	1	127,771	133	1,190,455	580	23,407,271
Lake Havasu Area	52	452,454	1	4,608	0	0	56	149,213	109	606,275
Mohave Valley N.	1,262	18,436,827	84	9,272,148	0	0	1,143	3,795,468	2,489	31,504,443
Mohave Valley S.	558	6,843,102	16	650,726	0	0	444	806,911	1,018	8,300,739
Dolan Springs	114	1,153,250	6	115,800	1	448	121	194,850	242	1,464,348
Sacramento Valley	221	2,094,132	7	227,424	0	0	287	420,116	515	2,741,672
Mohave General	63	1,231,449	10	397,104	2	484,484	38	76,914	113	2,189,951
NAVAJO COUNTY	1,189	22,178,802	32	3,936,037	5	329,844	225	2,611,048	1,451	29,055,731
Holbrook	17	271,450	4	805,000	0	0	14	42,250	35	1,118,700
Show Low	143	2,899,300	9	691,460	2	149,000	98	851,782	252	4,591,542
Snowflake	36	N/C	2	N/C	0	0	11	N/C	49	N/C
Taylor	30	275,300	0	0	0	0	1	0	31	275,300
Unincorporated	860	17,348,664	14	1,365,877	3	180,844	71	1,535,656	948	20,431,041
Winslow	103	1,384,088	3	1,073,700	0	0	30	181,360	136	2,639,148
PIMA COUNTY	10,231	263,606,602	303	247,337,798	15	5,073,500	6,662	92,750,649	17,211	608,768,549
Marana	32	N/C	2	N/C	0	0	13	N/C	47	N/C
Oro Valley	109	4,965,773	6	2,107,735	0	0	44	567,071	159	7,640,579
South Tucson	107	420,111	4	1,136,668	0	0	61	1,080,091	172	2,636,870
Tucson	3,107	57,967,718	247	197,340,395	1	220,000	3,512	59,093,587	6,867	314,621,700
Unincorporated	6,876	200,253,000	44	46,753,000	14	4,853,500	3,032	32,009,900	9,966	283,869,400
PINAL COUNTY	1,753	27,208,371	141	17,467,398	14	10,886,438	945	13,785,923	2,853	69,348,130
Apache Junction	602	10,387,463	65	6,864,413	1	56,664	598	5,943,778	1,266	23,252,318
Casa Grande	142	4,286,849	31	6,845,535	4	10,400,774	90	1,707,902	267	23,241,060
Coolidge	115	339,560	2	120,000	1	90,000	57	844,336	175	1,393,896
Eloy	33	82,300	1	42,500	3	215,000	12	60,300	49	400,100
Florence	74	69,113	1	N/C	0	0	22	3,171	97	72,284
Kearny	2	1,000	0	0	0	0	1	68,000	3	69,000
Mammoth	13	215,500	1	0	0	0	1	58,000	15	273,500
Superior	18	41,333	3	1,650	0	0	12	6,580	33	49,563
Unincorporated	754	11,785,253	37	3,593,300	5	124,000	152	5,093,856	948	20,596,409
SANTA CRUZ COUNTY	125	6,306,907	1	130,000	0	0	58	1,683,230	184	8,120,137
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	13	193,025	0	0	0	0	12	183,925	25	376,950
Unincorporated	112	6,113,882	1	130,000	0	0	46	1,499,305	159	7,743,187
YAVAPAI COUNTY	3,085	76,584,493	120	13,881,441	35	1,147,181	1,250	14,222,024	4,490	105,835,139
Chino Valley	156	3,226,053	5	124,000	0	0	80	356,957	241	3,707,010
Clarkdale	47	950,833	0	0	1	38,400	19	122,600	67	1,111,833
Cottonwood	121	2,020,480	17	3,569,792	14	158,995	53	1,103,552	205	6,852,819
Jerome	15	16,520	0	0	0	0	10	11,922	25	28,442
Prescott	407	10,096,228	22	3,145,244	1	38,720	614	3,391,839	1,044	16,672,031
Prescott Valley	406	9,732,512	7	372,510	8	406,272	43	474,480	464	10,985,774
Unincorporated	1,933	50,541,867	69	6,669,895	11	504,794	431	8,760,674	2,444	66,477,230
YUMA COUNTY	1,331	32,733,735	38	6,473,916	12	2,283,128	449	12 502,414	1,830	53,993,193
Somerton	39	1,128,266	1	6,000	1	36,400	31	68,817	72	1,239,483
Unincorporated	622	14,189,900	17	3,619,786	7	1,031,946	192	1,718,579	838	20,560,211
Wellton	4	13,160	1	N/C	0	0	6	10,200	11	23,360
Yuma	666	17,402,409	19	2,848,130	4	1,214,782	220	10,704,818	909	32,170,139
Total, Maricopa Co., Annual, 1983	31,995	1,158,298,000	3,577	927,189,283	447	89,365,043	27,548	294,907,540	63,567	2,469,759,866
Total, Maricopa Co., Annual, 1982	22,641	594,299,935	2,133	571,050,849	401	109,797,829	17,974	253,064,870	43,149	1,528,213,483
Percent Change	41	94	67	62	11	– 18	53	16	47	61
Total, Arizona Annual, 1983	58,210	1,747,427,099	4,732	1,277,893,672	574	113,550,343	42,102	461,639,243	105,618	3,600,510,357
Total, Arizona Annual, 1982	43,291	981,706,456	3,221	810,614,922	492	145,266,857	30,385	430,898,630	77,389	2,368,486,865
Percent Change	34	77	46	57	16	– 21	38	7	36	52

*Includes Mobile Homes
N/R: No Report
N/C: Not Collected
Note: Some communities do not collect dollar valuations.

A Survey of Arizona Business Conditions

HAROLD FEARON

DECEMBER

The old year closed out in splendid fashion, and all factors are in place for a continuation of solid growth in the new year, according to the December business survey of the purchasing management associations of Arizona and Southern Arizona. All indicators of business activity again were positive, for the 11th consecutive month; both new orders received and production registered good gains. With demand continuing strong, capital spending will have to increase in 1984—and Arizona firms indicate that it will. When the strong demand and greater capital spending are coupled with efforts to rebuild inventories, the scenario is in place for brisk growth during first quarter, 1984, and well into the new year.

The purchasing business survey is in its 21st consecutive year of monthly reporting on the health of the Arizona economy. Data are gathered through a questionnaire sent at the close of each month to purchasing managers throughout the state, asking them to indicate the direction of activity—higher, unchanged, or lower—on seven key measures of economic activity in the month just ended. These purchasing managers deal daily with supply, demand, and price factors in the marketplace. Their aggregate readings have accurately charted the course of the current economy over the past two decades and have provided data on turning points several weeks earlier than comparable government data.

Prices

Prices paid for major purchased items continued to advance during December, but the rate of increase was lower than in November and smaller than in all but one of the past eight months (since last May). Higher prices were paid by 35 percent of the firms; only 7 percent paid lower prices in December than in November; 58 percent said prices were unchanged. While the Arizona economy is experiencing definite inflationary pressures, they are moderate and do not yet pose a serious threat to the expansion.

Delivery Time

Delivery time on shipments from vendors stretched at the same rate as in the previous month. Forty-seven percent of the purchasing managers said it took longer to receive vendor deliveries in December than in November; only 5 percent reported faster service. The lengthening of lead times has been consistent over the past eight months, as the economy has grown faster than its ability to deliver product, which is typical in a strong upswing.

Inventory Levels

Inventory levels of purchased materials were up from last month, with an inventory increase reported by 32 per-

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Dr. Fearon is The National Association of Purchasing Management Professor of Management in the College of Business Administration, Arizona State University.

cent of the firms, compared to only 17 percent that cut stocks. This was the 11th consecutive monthly increase, but they have been moderate, and there is no inventory overhang threatening further economic growth.

New Orders

New orders received from customers registered a healthy increase in December—the 12th month in a row—and a substantially larger rise than in November. Forty-nine percent of the firms booked more new business in December than in November, which was three times as great as the 16 percent that saw their incoming orders decline. New order performance has shown consistent, strong growth each month, beginning last February. This demand is the primary factor that has fueled the strong recovery of the past year and will keep it going well into 1984.

Production

Production also rose significantly over November, marking the 12th consecutive monthly increase. Forty-four percent of the firms reported higher production; only 14 percent cut back output.

Employment

Employment increased again, for the 11th month in a row, and at the same rate as in November. Twenty-eight percent of the firms added to their workforce, compared to the much-smaller 11 percent that pared payrolls. While the increase rate in the fourth quarter was somewhat less than in the third quarter, employers still were hiring as necessary to meet the higher new order and production demands; they should continue to do so during the next several months.

Purchases

Purchases of materials and services by Arizona firms grew to meet the higher production needs. Increased purchase commitments were made by 53 percent of the firms, more than three times the 16 percent that reduced their buys. The rate of increase was higher in December than in the previous month and close to the very large jumps in September and October. This is a good indicator of the underlying strength in the economy and, in itself, is stimulating further economic growth.

A special question is asked on each December's survey, regarding *anticipated* expenditures for new plant and equipment during the following year. The responses indicate that 1984 will be a very good year. The rate of expenditure is anticipated to be substantially higher than it was in 1983 and on a par with that of the boom years of the late 1970s. If these anticipated expenditures are realized, they will have a very stimulative effect on economic growth next year. Since current demand is now "pushing" production resources, it seems likely that capacity will need to be expanded shortly.

When asked to compare capital expenditures *anticipated for 1984* with those actually made in 1983, a very large 53 percent said their firm would spend more; 31 percent expected no change; and only 16 percent forecasted a decline. The results of this special question during the past 10 years are shown in Table 1.

TABLE 1
ANTICIPATED EXPENDITURES FOR NEW PLANT AND EQUIPMENT

Expenditures anticipated for new plant and equipment	*Percentage*		
	Higher	*Same*	*Lower*
1984 compared to 1983	53	31	16
1983 compared to 1982	27	26	47
1982 compared to 1981	40	19	41
1981 compared to 1980	49	27	24
1980 compared to 1979	54	29	17
1979 compared to 1978	55	28	17
1978 compared to 1977	54	30	16
1977 compared to 1976	48	37	15
1976 compared to 1975	41	28	31
1975 compared to 1974	21	31	48

Source: Purchasing Management Association of Arizona and Purchasing Management Association of Southern Arizona.

Thus, Arizona's economy finished out the year with another month of broadly-based growth. The recovery, which began slowly last January, picked up speed very rapidly; 1983 was a banner economic year. The soft spots are conspicuous by their absence, and the strong momentum will continue well into 1984.

Table 2 presents the data from the December purchasing survey.

TABLE 2
DECEMBER PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (December compared to November)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	35	58	7
Delivery time from vendors	47	48	5
Purchased materials inventory level	32	51	17
New orders received	49	35	16
Production	44	42	14
Employment	28	61	11
Purchases	53	31	16

Source: Purchasing Management Association of Arizona and Purchasing Management Association of Southern Arizona.

JANUARY

The Arizona economy entered 1984 on an upbeat note, still accelerating, following a very strong fourth quarter. Strong growth will be registered at least through the first half of the year. The rate of economic advance may moderate somewhat toward the end of the year as output catches up with demand. Inflation will intensify as operating rates advance closer to normal capacity.

Prices

Prices paid for major purchased items went up sharply. The January increase rate was substantially higher than the previous month's rate and the largest in more than two years—since August 1981. Higher prices were paid by 49 percent of the firms; only 5 percent paid lower prices in January than in December; while 46 percent said prices remained unchanged. January marked the 13th month of an upward price trend, with both November and January registering increase rates not far below those of the months of the very high inflation years 1977 to 1980. As the recovery reaches the mature stage and resource shortages begin to develop, inflationary pressures will intensify.

Delivery Time

Delivery time on shipments from vendors continued to lengthen, at a slightly higher rate than in December and at the highest rate in more than four years (since June 1979). Fifty-three percent of the purchasing managers reported it took longer to receive vendor deliveries in January than in December, which was more than 10 times the 5 percent who received faster service. The continued stretch-out in delivery times is typical in a strong upswing, as demand taxes suppliers' ability to increase output as rapidly as needed to satisfy the production requirements of buyers.

Inventory Levels

Inventory levels of purchased materials went up, for the 12th consecutive month, and at the highest rate since last July. Thirty-seven percent of the firms increased inventory, compared to 15 percent that cut stocks. However, considering the rapid growth enjoyed by the economy during the past three quarters, the growth in inventory has been moderate and poses no immediate threat to the expansion.

New Orders

New orders received from customers enjoyed a good increase in January—the largest since last September. Fifty-eight percent of the firms saw their order books expand, while only 14 percent received less business in January than in December. The rise in the new order rate, which now is in its 13th consecutive month, has been fueling the expansion and should continue, although perhaps at a somewhat lower rate, during the balance of the year.

Production

Production also went up, at essentially the same rate as in the previous month. Higher output was effected in 42 percent of the firms; only 11 percent reduced production. Production rates have experienced consistent, strong increases in each of the past 12 months.

Employment

Employment enjoyed another increase, for the 12th consecutive month, although at a slightly lower rate than in December. Twenty-four percent of the firms added to their work force, compared to 11 percent that pared payrolls. While the employment increases are occurring at a lower rate than in the earlier stage of the recovery, they continue to reflect a growing economy.

Purchases

Purchases of materials and services by Arizona firms were increased to meet higher production requirements. Fifty-five percent of the firms increased their purchase commitments, which was six times the 9 percent that cut back on their buys. The January net increase was the largest of any of the 11 months for which data on this series have been collected. In addition to being a reaction to the strong economic expansion, the increased purchasing provides its own stimulative effect on future growth.

Thus, the Arizona economy reached new, higher ground in January. While the strong uptrend will continue, the pace will probably not be sustained for the entire year. However, the shift from drive into overdrive should be smooth, with only the increasing price trend signifying problems down the road.

Table 3 presents the January results.

TABLE 3
JANUARY PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (January compared to December)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	49	46	5
Delivery time from vendors	53	42	5
Purchased materials inventory level	37	48	15
New orders received	58	28	14
Production	42	47	11
Employment	24	65	11
Purchases	55	36	9

Source: Purchasing Management Association of Arizona and Purchasing Management Association of Southern Arizona.

FEBRUARY

The Arizona economy turned in another very strong performance in February, with all indicators showing good increases. Delivery time on vendor shipments experienced a major stretch-out, as backlogs built up. The economy continued to accelerate, extending 1983's healthy recovery. Growth will continue during the next several quarters and may assume "boom" proportions. The only factor that may cause the growth rate to flatten is the build-up of inflationary pressures, which will intensify during the next few months.

Prices

Prices paid for major purchased items climbed sharply. The February increase rate was the highest in more than 2½ years—since June 1981. Forty-eight percent of the firms paid higher prices in February than in January; only 2 percent paid lower prices; while 50 percent said prices remained unchanged. February was the 14th consecutive month of an upward price trend. Danger now exists that an overheated economy will cause the return of a consistently high level of price increases, resulting in a rise in interest rates, which then would begin to restrict growth.

Delivery Time

Delivery time on [illegible]ments from vendors continued to stretch, as demar[illegible] pressures on available supply remained very strong. Fifty-seven percent of the purchasing managers said it took longer to get vendor deliveries in February than in January, which was close to 20 times the modest 3 percent who enjoyed faster delivery service. The delivery time increase rate was the highest in more than 4½ years (since June 1979), as backlogs continued to grow.

Inventory Levels

Inventory levels of purchased materials increased for the 13th consecutive month and at the same rate as in January. Forty-one percent of the firms added to inventory, about twice the 19 percent that cut stocks. However, the inventory build-up has been moderate, considering the strength of the recovery, and probably is due to the introduction of computerized inventory control methods, plus relatively high inventory carrying costs.

New Orders

New orders received from customers enjoyed strong growth in February—a repeat of the January performance. This increase was the 14th consecutive hike in the new order rate, which is the locomotive that has been pulling the economy along at a fast pace since early 1983.

Fifty-five percent of the firms booked more new business in February than in January, compared to only 11 percent that saw their order books shrink. Additional new order hikes likely will occur during the months immediately ahead, putting further strains on resource availability.

Production

Production of Arizona firms kept pace with new order growth. The February increase rate was the highest since last September, with 48 percent hiking output—more than five times the 9 percent that cut production. February was the 14th month in a row in which production increased to meet higher demand.

Employment

Employment saw its highest net increase since last September, as 36 percent of the firms added to their work force, compared to only 13 percent that pared payrolls. Employment levels have recovered nicely since early 1983, when the upswing began, and should continue to increase as needed to meet higher production demands triggered by the flood of incoming business.

Purchases

Purchases of materials and services by Arizona firms rose sharply to meet higher production needs. Fifty-eight percent of the firms increased their purchase commitments, approximately five times the 11 percent that cut back their buys. The February increase was the largest of any of the 12 months over which data for this series have been collected.

Summary

The business expansion continues to gain a strong head of steam and could reach "boom" proportions very shortly. The only factor that may slow the growth rate during the next several months is the heightened rate of price increases, which may cause interest rates to inch up further and choke off capital investment.

The results of the February purchasing survey are shown in Table 4.

TABLE 4
FEBRUARY PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (February compared to January)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	48	50	2
Delivery time from vendors	57	40	3
Purchased materials inventory level	41	40	19
New orders received	55	34	11
Production	48	43	9
Employment	36	51	13
Purchases	58	31	11

Source: Purchasing Management Association of Arizona and Purchasing Management Association of Southern Arizona.

Arizona Business Scene

TOM R. REX

Small Town, Arizona

Although Arizona's population is concentrated in the urbanized areas of Phoenix and Tucson, approximately one in six Arizonans live in rural areas (defined by the U.S. Bureau of the Census as areas or towns of under 2,500 people). Because most of the rural areas are unincorporated, little information is available on 440,000 Arizonans. A look at four small towns, using 1980 Census data, provides a picture of the diversity of communities statewide.

Alpine

Alpine is located high in the White Mountains of east-central Arizona, a few miles from New Mexico. At an elevation of 8,000 feet, it is surrounded by the pine trees of the Apache-Sitgreaves National Forest. The town's climate is 30 degrees cooler than that of the desert; thus, tourism is important to Alpine, as urban dwellers escape the summer heat. The permanent population of the town and surrounding area, including the town of Nutrioso a few miles north, is 776.

Alpine's demographics, such as its age distribution (Table 1), are more similar to those of Arizona as a whole than are the population characteristics of the other towns profiled here. Yet there are a number of contrasts. Racially, Alpine is more than 95 percent white, with a small proportion of Hispanics. In addition, nearly half of its residents were born in Arizona, compared to only 33 percent statewide (Table 2). Alpine has also experienced the inmigration of city dwellers. Nearly one-fourth of the town's residents in 1980 were living in a metropolitan area in 1975.

At the time of the 1980 Census, Alpine was suffering high unemployment, particularly in the male work force, which had an unemployment rate of 20 percent. Occupationally, 15 percent of the work force are employed in agricultural or forestry work, with comparatively low percentages involved in managerial and technical work (Table 3). More than one-third of the labor force works for government agencies, nearly double the state average, and 18 percent are self-employed, triple the state average.

A large proportion, more than one-fourth, of Alpine's dwellings are mobile homes; a similarly large proportion of all housing units were built prior to 1950. Despite a cold climate, where winter temperatures average less than 30 degrees, few of the homes have central heating systems. More than 75 percent rely on fireplaces, stoves, and/or portable room heaters, with wood as the primary fuel.

Bagdad

Bagdad is located 100 miles northwest of Phoenix in an isolated area of low mountains. The town is almost completely dependent upon the copper mining and concentrating activities of Cyprus Bagdad Corporation.

At the time of the 1980 Census, most of Arizona's copper mines were operating at full capacity. Since then, the industry has faced numerous problems, forcing most mines to reduce operations or to close temporarily. The mine in Bagdad had been an exception, remaining fully operative, but it finally succumbed to the industry's problems. The mine closed indefinitely in February 1984, idling most workers.

Thus, while the 1980 employment data presented below are not currently representative of Bagdad, nor of other Arizona mining towns, the former high employment situation could occur again if the condition of the copper industry improves. Despite mine shutdowns, few people have left Bagdad or other mining towns; hence, most of the 1980 demographics remain accurate.

The 2,331 inhabitants of Bagdad are predominantly white, although the town's proportion of Hispanics, 17 percent, almost equals the Arizona average. A young population, 44 percent of Bagdad residents are less than 20 years old, and only 2 percent are 65 years or older. Nearly two-thirds of the residents were born in Arizona, almost twice the state average. There has been almost no recent inmigration to Bagdad from outside Arizona. The populace does not move frequently: almost three-fourths were living in the same house in 1980 as in 1975.

The 1980 employment picture in Bagdad was much different from that of other areas. There was zero unemployment among males and only 3 percent among

TABLE 1
AGE DISTRIBUTION IN SMALL ARIZONA COMMUNITIES

Age	*Alpine*	*Bagdad*	*Colorado City*	*Fountain Hills*	*Arizona*
Under 20	35%	44%	73%	25%	33%
20 - 44	36	40	22	30	37
45 - 64	21	14	3	32	19
65 and over	8	2	2	13	11

Source: Census of Population and Housing, 1980: Summary Tape File 1A (Arizona) (machine-readable data files). Prepared by U.S. Bureau of the Census.

TABLE 2
NATIVITY AND MIGRATION CHARACTERISTICS OF ARIZONA SMALL TOWN RESIDENTS

	Alpine	*Bagdad*	*Colorado City*	*Fountain Hills*	*Arizona*
Born in Arizona	47%	63%	12%	4%	33%
Living in same house in 1975	41	73	90	15	42
Living in different state in 1975	19	4	7	61	24

Source: Census of Population and Housing, 1980: Summary Tape File 3A (Arizona) (machine-readable data files). Prepared by U.S. Bureau of the Census.

TABLE 3
OCCUPATIONS OF ARIZONA SMALL TOWN RESIDENTS

	Alpine	*Bagdad*	*Colorado City*	*Fountain Hills*	*Arizona*
Managerial and Technical	42%	27%	25%	69%	56%
Service	16	10	3	11	14
Farming and Forestry	15	0	11	2	3
Production and Laborers	27	63	60	18	28

Source: Census of Population and Housing, 1980: Summary Tape File 3A (Arizona) (machine-readable data files). Prepared by U.S. Bureau of the Census.

females. These figures are a sharp contrast to today's high unemployment, illustrating the up-and-down swings that have characterized the mining industry.

Compared to Arizona, a higher proportion of Bagdad's male adults, 84 percent, but a much lower proportion of the town's female adults, 19 percent, were part of the work force. Only 5 percent of the women with a preschool age child were part of the labor force, compared to 45 percent statewide. Nearly two-third of the workers were employed in labor and production in the mine.

Nearly all of the 1979 median household income of $18,800 was derived from wages and salaries; the median income of Spanish-origin families was higher than that of white families. Their effective income was even higher since nearly all Bagdad residents rented their homes from Cyprus Bagdad Corporation for less than $50 per month. Most of the housing consists of single-family homes, with two-thirds built since 1970.

Colorado City

Colorado City is located along the "Arizona Strip," north of the Grand Canyon. Situated on the Utah border, the town spreads into Hilldale, Utah. This area is quite isolated and is closer to larger towns in Utah than in Arizona. The surrounding countryside is a high, dry plateau with sparse vegetation. The Arizona population of the Colorado City area was 1,453 in 1980.

Many of Colorado City's demographics are very different from those of Arizona as a whole. The population is virtually 100 percent white, with a vast majority of English ancestry and the remainder of German descent. One-half of the residents are less than 11 years old, the result of an extremely high birthrate: The average married couple has nine children living at home. Nearly three-fourths of the people are under 20 years old, and only 5 percent are older than 45 years. There is an unusually large percentage of females: In the 15 to 44 age group, females constitute 58 percent of the population.

The populace moves infrequently, with 90 percent living in the same house in 1980 as in 1975. Because the local hospital is in Utah, only 12 percent of the residents were born in Arizona.

In 1980, zero unemployment existed in Colorado City. Sixty percent of the workers were employed in production and labor occupations, more than double the proportion for Arizona as a whole. A relatively large segment, 11 percent, work as farmers. Many residents commute to other towns to work, particularly in Utah. The long commute of more than one hour one-way, which is made by 30 percent of the labor force, induces many to carpool to work. In contrast, 27 percent live close enough to walk to work.

The median household income was only $10,000 in 1979. Fifty-one percent of the families—64 percent of those with children at home—lived below the poverty level. Yet, only 9 percent of the households received public assistance. However, the residents of Colorado City pay very little for shelter, which helps to raise their effective incomes: nine of every ten households are renters, but most of them pay no rent.

Fountain Hills

Fountain Hills, a planned community established in 1970, is located 30 miles northeast of Phoenix in the foothills of the McDowell Mountains. Because of its population of 2,771 and its proximity to Phoenix, it is not considered a rural area.

The population of Fountain Hills is more than 98 percent white. The community has a relatively small segment of people less than 30 years old, with nearly one-third of its inhabitants in the pre-retirement age bracket of 45 to 64 years old. Since the town is new and growing, only 15 percent of its 1980 residents were living in the same house in 1975. Most of its populace are recent migrants to Arizona: only 4 percent were born in Arizona, and 61 percent were living outside Arizona in 1975, primarily in the North Central region of the United States.

In comparison to Arizona as a whole, the proportion of managerial and technical workers in Fountain Hills is higher, with fewer production workers and laborers. The proportion working in finance, insurance, and real estate, 16 percent, is more than double the state norm. There is also an unusually large number of self-employed (16 percent). More than one-half of the labor force works outside Fountain Hills, but, despite the long commute, more than three-fourths drive to work alone.

The community's median household income of $25,050 in 1979 was 52 percent higher than the state's median. An unusually large portion of this income was received from sources other than wages and salaries, particularly from interest, dividends, and rent. This is reflected in the incomes of households with no workers: their mean of $24,600 was nearly as high as the mean of households with one worker, $28,400.

There are no mobile homes in Fountain Hills, although nearly 30 percent of the dwellings are multifamily. A very large proportion of the housing units were vacant in 1980 (28 percent). The median value of owner-occupied homes was $92,100 in 1980, far above the Arizona median of $56,600.

The variety of Arizona's small towns is not exhausted by the widely-differing characteristics of the four towns profiled here: a mountain town dependent on forestry and tourism, a mining town, a ~~rural area~~ more closely associated with Utah, and a planned, urban satellite community. Retirement communities, Indian reservation towns, and Mexican border towns are other examples of the great diversity of people and lifestyles found in Arizona.

ARIZONA SALES OF ELECTRICAL POWER

(In Millions of Kilowatt Hours)

	1983	*1982*	*Percent Change From Prior Year*	*Percent Change From Prior Month*
November	2267.3	2140.7	+5.9%	−2.2%
December	2450.2	2399.0	+2.1	+8.1
	1984	*1983*		
January	2511.9	2193.2	+14.5	+2.5

Source: Arizona Power Authority (based on reports from major suppliers).

Metropolitan Phoenix Consumer Price Index Fourth Quarter, 1983

TOM R. REX

Prices of goods and services in the Phoenix metropolitan area rose only 0.5 percent during the fourth quarter, 1983, after two quarters of moderately large increases (see Table 1). The index for all items is 4.1 percent higher than it was one year ago.

The Metropolitan Phoenix Consumer Price Index (CPI), on which these inflation figures are based, is prepared by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University. The quarterly CPI results from comprehensive surveys conducted by the Bureau in cooperative cosponsorship with Valley National Bank.

Fourth quarter consumer price changes were moderate throughout the index, with each of the major categories—housing, transportation, and food and beverages—showing a change of one-half percent or less. Lower inflation in transportation and deflation in housing accounted for nearly all of the improvement in the overall inflation rate from the third to the fourth quarters.

Food and Beverages

For the second consecutive quarter, prices of food and beverages showed little change, rising only 0.4 percent during the fourth quarter. A somewhat larger gain in the food away from home category was offset by a decline, the largest since 1976, in the price of alcoholic beverages. Most of the advance of 0.4 percent in the food purchas-

TABLE 1
PERCENT CHANGES IN METROPOLITAN PHOENIX CONSUMER PRICE INDEX

		Percent Change from Preceding Quarter							
Expenditure Category	*Relative Importance*	*1st 1982*	*2nd 1982*	*3rd 1982*	*4th 1982*	*1st 1983*	*2nd 1983*	*3rd 1983*	*4th 1983*
ALL ITEMS	100.0	1.6	0.5	1.0	(2.0)	0.2	1.7	1.6	0.5
Food and Beverages	19.0	1.7	1.1	0.4	(0.6)	2.3	1.5	(0.1)	0.4
Housing	39.0	2.1	0.4	0.0	(4.2)	(0.5)	1.8	0.9	(0.2)
Apparel and Upkeep	5.0	0.7	3.5	(1.0)	(1.2)	0.6	1.8	1.0	1.7
Transportation	21.8	(0.9)	(0.9)	2.2	(0.8)	(1.9)	2.5	3.3	0.5
Medical Care	6.6	4.7	0.9	8.5	1.3	3.0	1.0	4.7	2.0
Entertainment	4.6	2.8	(1.4)	1.5	2.3	1.7	(2.1)	(0.2)	2.9
Other Goods and Services	4.1	1.5	2.2	1.8	2.0	2.6	2.7	4.7	0.5

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank.

ed at grocery stores category was a result of a 2.3 percent rise in the cost of meats, poultry, fish and eggs, which follows a large decline in the third quarter. Although poultry prices fell, each of the other components of this category advanced, led by a 10.4 percent jump in the price of eggs.

The indexes for both dairy products and for other foods at home also rose during the fourth quarter but by small amounts (see Table 2). Lower prices were paid for cereal and bakery products and for fruits and vegetables. Although the seasonal drop in fresh fruit prices was the largest in four years, fourth quarter price levels were still 15.3 percent higher than they were one year ago.

Housing

Housing costs declined 0.2 percent in the fourth quarter, the third drop in the last five quarters. The decrease was primarily caused by the switch to winter electricity rates, which were 11.1 percent lower. Modest advances in the cost of household furnishings and operations and in the shelter category were not enough to total-

TABLE 2
METROPOLITAN PHOENIX CONSUMER PRICE INDEX
FOURTH QUARTER, 1983
(1977 = 100)

Expenditure Category	*Last Qtr. Index*	*This Qtr. Index*	*Per Cent Change*	*Year Ago Change*
ALL ITEMS	173.2	174.1	0.5	4.1
Food and Beverages	159.4	160.0	0.4	4.1
Food	159.7	160.6	0.6	4.1
Food at Home	157.7	158.3	0.4	2.6
Cereal and Bakery Products	164.1	161.1	(1.8)	1.9
Meats, Poultry, Fish, and Eggs	150.9	154.4	2.3	(0.3)
Dairy Products	151.9	152.9	0.7	0.5
Fruits and Vegetables	168.4	166.4	(1.2)	14.2
Other Food at Home	148.0	148.1	0.1	1.2
Food Away From Home	160.8	162.3	0.9	6.8
Housing	184.1	183.8	(0.2)	2.1
Shelter	195.0	196.0	0.5	1.5
Renters' Costs**	101.7	102.5	0.8	0.0
Homeowners' Costs**	100.2	100.6	0.4	0.0
Fuel and Other Utilities	164.6	159.3	(3.2)	6.8
Gas (piped) and Electricity	188.1	176.4	(6.2)	6.1
Household Furnishings and Operations	143.4	143.9	0.3	2.5
Apparel and Upkeep	136.1	138.4	1.7	5.2
Transportation	169.8	170.7	0.5	4.5
Private Transportation	166.4	167.6	0.7	4.0
New and Used Cars	169.7	171.1	0.8	11.6
Motor Fuels	196.9	194.5	(1.2)	(4.9)
Public Transportation	228.2	223.5	(2.1)	10.5
Medical Care	197.7	201.6	2.0	11.0
Entertainment	157.3	161.8	2.9	2.1
Other Goods and Services	157.0	157.8	0.5	10.8

An ** indicates that the base period is second quarter, 1983.
The year ago change for categories with a second quarter 1983 base is unavailable.

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank.

ly offset this decline. The small change in shelter costs was due to continued modest gains in both renters' costs and homeowners' costs. High vacancy rates and high levels of construction continue to limit rental increases.

Transportation

After large increases in the last two quarters, transportation costs climbed only 0.5 percent in the fourth quarter. The indexes of several components dropped, including the largest decline ever for vehicle parts and equipment, due to the lower price of tires. Gasoline prices, public transportation costs, and vehicle finance charges also fell, the latter for the sixth time in the last seven quarters.

Increases of less than 1 percent in both new car and used car prices, after large advances in the third quarter, also helped to moderate the gain in the transportation index. However, larger increases occurred for vehicle maintenance and repair and for vehicle insurance.

Medical Care

The medical care index continued its pattern of alternating between large gains one quarter and smaller increases the next. A 2.0 percent rise in the fourth quarter followed a 4.7 percent jump in the third quarter. Each subcategory showed a moderate advance, ranging from 1.2 percent for non-prescription drugs and medical supplies to 2.7 percent for professional services.

Other Categories

Apparel and upkeep prices rose 1.7 percent in the fourth quarter, boosted by a 6.0 percent jump in men's and boys' apparel prices, which had dropped in the previous quarter. Entertainment costs rose 2.9 percent, with large seasonal increases in golf fees leading the gain. After several successive quarters of moderate to large advances, prices of other goods and services went up only 0.5 percent in the fourth quarter. This deceleration was aided by a slight decline in prices for tobacco products, the first since first quarter, 1981.

Comparison Areas

The fourth quarter inflation rate in the metropolitan Phoenix area was a little below the national average due to smaller increases in the prices of housing, transportation, and other goods and services (see Table 3). Over the last year, inflation has been slightly greater in the Phoenix area, with higher rates in each category except housing

TABLE 3
METROPOLITAN PHOENIX CONSUMER PRICE INDEX
UNITED STATES AND COMPARATIVE CITIES

FOURTH QUARTER, 1983

	Percent Change from Last Quarter		*Percent Change from One Year Ago*			
Expenditure Category	*Phoenix*	*United States*	*Phoenix*	*United States*	*Denver*	*San Diego*
ALL ITEMS	0.5	0.9	4.1	3.2	4.2	6.4
Food and Beverages	0.4	0.1	4.1	2.2	4.2	5.6
Housing	(0.2)	0.7	2.1	2.4	3.0	8.6
Apparel and Upkeep	1.7	1.7	5.2	2.7	(2.5)	1.8
Transportation	0.5	1.3	4.5	3.5	4.5	4.8
Medical Care	2.0	1.4	11.0	6.6	8.8	4.1
Entertainment	2.9	1.2	2.1	4.0	6.1	3.1
Other Goods and Services	0.5	3.2	10.8	8.9	12.7	9.5

Source: Metropolitan Phoenix data compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank; other data from U.S. Department of Labor, Bureau of Labor Statistics.

and entertainment. However, when the December CPI for the United States is released, the national rate should be roughly equal to that of the Phoenix area.

Metropolitan Phoenix inflation during 1983 has been nearly equivalent to that of the Denver area, with similar rates of increase in each of the major categories of food and beverages, housing, and transportation. Compared to the San Diego area, the Phoenix area's inflation has been lower, primarily because of San Diego's 8.6 percent increase in housing costs.

Outlook

The slower fourth quarter inflation suggests that a return to much higher inflation is still several months away. Most forecasters continue to predict 1984 inflation between 5 and 6 percent, with a minority of economists expecting a sharper rise, particularly late in 1984, to 7 percent or more. Potentially large rate increases for utilities may push the inflation rate in the Phoenix area slightly above the national average.

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Second Quarter, 1984

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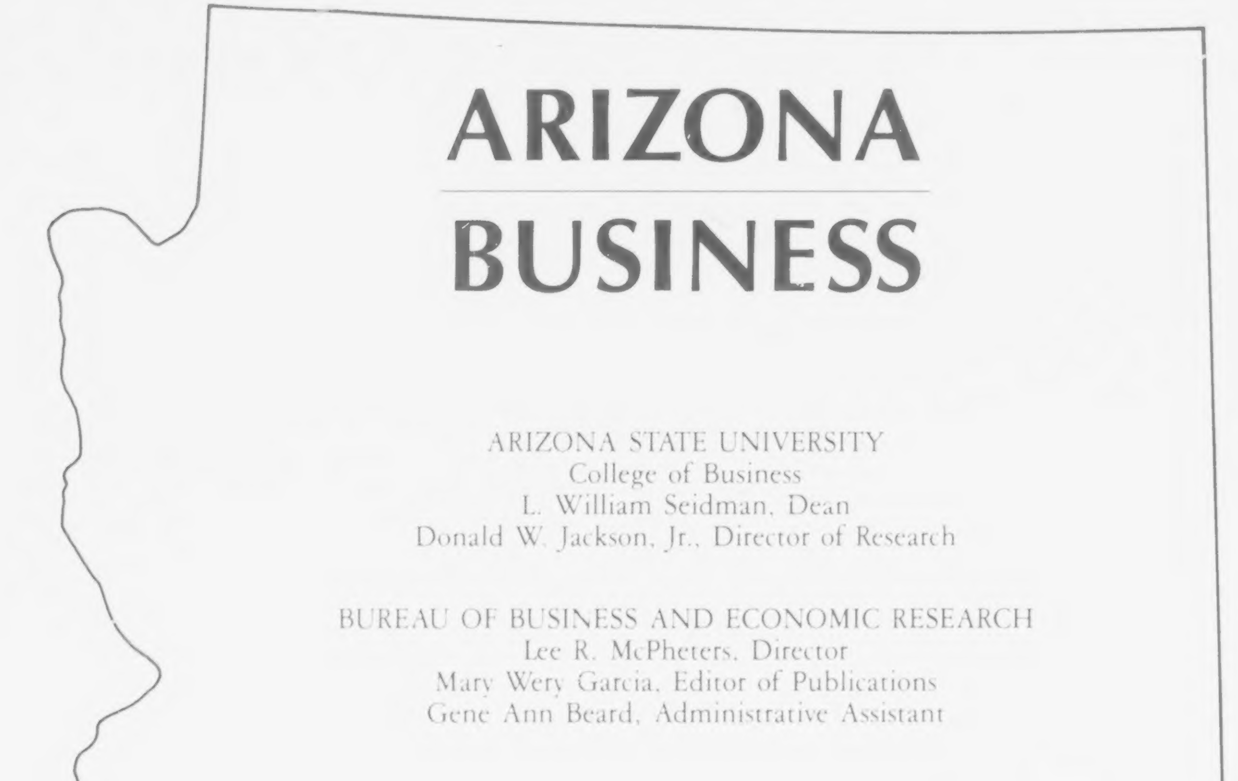

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Report to the Reader

On May 30, two years of research and analysis by the Bureau of Business and Economic Research in the ASU College of Business culminated in a press conference to announce development of a Gross State Product (GSP) model that is the first quarterly measure of Arizona's economic output. Similar to Gross National Product, GSP measures the total value of the production of goods and services by Arizona industries.

Unlike other state GSP models, which use national implicit price deflators to inflation-adjust the data, the new Arizona model takes into account the fact that the state's industrial mix differs from that of the national economy. Thus, it incorporates specific deflators for the state's nine industrial sectors, using them to provide inflation-adjusted data for those sectors as well as for the total economy.

The GSP study revealed that the Arizona economy grew at a real rate of 5.6 percent during 1983, outpacing the national growth rate of 3.4 percent. The unadjusted Arizona GSP reached $36.2 billion in 1983, contributing 1.1 percent of the $3.3 trillion U.S. GNP. The state's average GSP real growth rate, 4.9 percent for the past decade, has been approximately double the rate of growth for the U.S. GNP.

The new model's forecasting capability allowed Dr. Lee R. McPheters, Bureau Director, and Tom R. Rex, Bureau Manager of Research Support, to predict a 9.7 percent real rate of growth for the Arizona economy during 1984. This rate is significantly faster than the expected 1984 growth rate of the national economy — between 5.5 percent and 6 percent.

The lead article in this issue of *Arizona Business* discusses the nature and applications of the new GSP model, highlighting the model's usefulness to both public and private sector economic planners. It exemplifies the benefits to be derived from the commitment of the College of Business to research and analysis of business/economic development in Arizona and the Southwest.

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Arizona's Gross State Product Outpaces GNP

LEE R. McPHETERS
TOM R. REX

The Arizona Gross State Product (GSP), an economic measure recently developed by the Bureau of Business and Economic Research in the ASU College of Business, reached $36.2 billion in 1983, contributing 1.1 percent of the $3.3-trillion U.S. Gross National Product (GNP). This article explains the derivation of the GSP and examines its growth in comparison to the GNP.

Lee R. McPheters is Professor of Economics in the ASU College of Business and Director of the Bureau of Business and Economic Research. Tom R. Rex is the Bureau's Manager of Research Support. The authors gratefully acknowledge the research contributions of Sandra Palais, Bureau Computer Applications Specialist; Keith Ugone and Tracey Clark, Graduate Research Assistants for the College of Business; and the original funding of the GSP research project by the office of the ASU Vice President for Academic Affairs.

The Gross National Product (GNP) is the most widely used measure of economic performance on the national level. Compiled by the U.S. Department of Commerce, the GNP represents the market value of all final goods and services produced in the United States measured both quarterly and annually. Fluctuations in this production are indicators of the health of the national economy. The GNP is expressed both in "current" dollars (not inflation-adjusted) and in "real" dollars (inflation-adjusted from a 1972 base). Generally, the GNP measured in real dollars is most closely watched; for example, two successive quarters of decline in real GNP usually indicate that the national economy has entered a recession, a period marked by lower production and less employment.

On a state level, however, GNP may not be a measure of economic performance that local businesses and government will find adequate. Due to a multitude of factors, such as industrial mix, population growth, and demographics, a state's economy may perform much differently from the national economy at any given time. However, no comparable measure of economic performance has been readily available at any local level.

The concept of a Gross State Product (GSP) was therefore devised. Several states have developed an estimate of their GSP, generally based on state personal income data compiled by the U.S. Department of Commerce. Though not as precisely and directly measured as the GNP, this estimate allows numerous analyses to be conducted, including computation of the state's share of GNP, comparison of the output of one state industry to another, and, of course, examination of the overall health and growth of the state's economy.

Most GSP models have two weaknesses. First, most measure GSP annually, not quarterly. Thus, the precise timing of the beginning or end of a business cycle is lost, making the data less valuable from a planning perspective. Second, most GSP models use national implicit price deflators to inflation-adjust the data. To the extent that the industrial mix of a state's economy differs from that of the national economy, real GSP may be seriously biased.

To provide the State of Arizona with a measure of its economic performance, the Bureau of Business and

Economic Research in the College of Business at Arizona State University has developed an Arizona Gross State Product model. Previous GSP models developed at ASU suffered from the same weaknesses noted above for other state models. However, the new model reports data quarterly and uses a more sophisticated means of inflation-adjustment. The model provides data for nine industrial sectors as well as for the total economy. This article briefly reviews the methodology used to develop the Arizona GSP model, then analyzes quarterly and annual data from 1960 through 1983.

ESTIMATING GROSS STATE PRODUCT

Gross National Product may be viewed as total national expenditures for consumer goods, investment goods (including inventory investment), government purchases of goods and services, and net exports (exports minus imports). The GNP may alternatively be measured as the total of income to the factors of production (known as National Income), plus certain indirect business taxes and capital consumption allowances. Most states, including Arizona, possess limited data on expenditures by category. Therefore, GSP estimation must be based on income data rather than on expenditure data.

The GSP estimation process begins with quarterly data on wage and salary income, proprietor's income, and other labor income, by industry, as published by the U.S. Department of Commerce. The nine industries included in the analysis are agricultural services, forestry, and farming; mining; construction; manufacturing; transportation, public utilities, and communications; wholesale and retail trade; finance, insurance, and real estate; services; and government. To earnings by industry, estimates are added for residence adjustments; dividends, interest, and rental income; retained corporate profits; and corporate profits taxes.

This total provides an estimate of state income, by industry, analogous to the concept of National Income. The addition of estimated components for indirect business taxes and capital consumption allowances, by industry, yields Gross State Product. Because the model is based on quarterly data, more timely and detailed analysis of quarterly business cycle fluctuations is possible. Annual totals are then calculated from the quarterly figures.

Dollar Volume of Total Sales vs. "Value Added"

In order to understand the significance of GSP as a measure of economic activity, it is important to distinguish between the dollar volume of total sales and "value added" within any industrial sector. Payments are made to the factors of production used to enhance the value of intermediate goods for further sale. Traditionally, one thinks of land receiving rent, labor receiving wages, capital receiving interest, and entrepreneurial skill receiving profits. Thus, "income to the factors of production" and "value added" are analogous terms and are measured by Gross State Product (GSP also includes depreciation as an additional "cost" of production.)

Total sales for any industrial sector will always be much larger than the dollar amount of value added to the Arizona economy by that sector. This is because the magnitude of sales for any sector includes not only its value added but also the dollar value of all intermediate products.

As an example, consider an automobile assembled in Michigan and sold at retail in Arizona. If the wholesale price to the dealer is $9,000 and the sales price in Arizona is $10,000, the value added to the Arizona economy is $1,000, to be distributed over wages, interest, rental income, and profit. Total sales are recorded as $10,000, but the $9,000 expended for intermediate purchase of the automobile adds nothing to the Arizona economy.

In brief, income to all factors of production is created when the value of an intermediate good is increased by the application of entrepreneurial skill in conjunction with the other factors of production (labor, capital, and land). Gross State Product is the sum of income to these factors plus depreciation and certain miscellaneous taxes.

Deflating the GSP

The second enhancement by the ASU Bureau of Business and Economic Research to the basic GSP model involves the means of deflating the GSP from current dollars to real dollars. Since the industrial mix in Arizona is different from that of the United States, the prevailing method of deflating each of the nine industrial outputs by national implicit price deflators for each industry was not deemed desirable. For example, the mining industry in Arizona consists predominantly of copper mining. Nationally, much of this industry's production involves oil, gas, and coal. Deflators based upon oil, gas, and coal prices, which have risen rapidly in recent years, would not be appropriate for adjusting copper output, which has experienced a price decrease in recent years.

Instead, very detailed price deflators were used, weighted by the annual income share of the associated detailed subsectors of each industry. Annual output from the GSP model, in both current and real dollars, is presented in Tables 1 and 2. Complete annual and quarterly Arizona GSP data, beginning with 1960, are available from the Bureau. All data will be updated quarterly and annually.

TABLE 1
ARIZONA ANNUAL GROSS STATE PRODUCT
1970-1983*
(In Billions of Current Dollars)

	Agriculture	*Mining*	*Construction*	*Manufacturing*	*Transportation Communication Public Utility*	*Trade*	*Finance Insurance Real Estate*	*Services*	*Government*	*Total*
1970	0.287	0.607	0.557	1.218	0.589	1.389	1.208	0.955	1.229	8.039
1971	0.344	0.655	0.730	1.300	0.669	1.585	1.423	1.085	1.406	9.198
1972	0.353	0.723	0.919	1.509	0.780	1.800	1.622	1.240	1.595	10.542
1973	0.442	0.874	1.090	1.750	0.904	2.104	1.853	1.438	1.814	12.270
1974	0.707	1.091	1.031	1.863	0.984	2.305	1.985	1.601	2.033	13.600
1975	0.481	1.145	0.858	1.955	1.111	2.484	2.033	1.739	2.269	14.074
1976	0.850	1.198	0.839	2.220	1.283	2.757	2.255	1.985	2.544	15.933
1977	0.696	1.144	1.110	2.637	1.474	3.142	2.710	2.327	2.760	17.999
1978	0.869	1.139	1.585	3.088	1.751	3.752	3.330	2.729	3.064	21.306
1979	1.106	1.447	2.048	3.764	1.942	4.378	4.042	3.318	3.367	25.413
1980	1.173	1.855	2.024	4.420	2.269	4.757	4.445	3.839	3.743	28.526
1981	1.155	2.650	2.025	5.120	2.682	5.368	5.044	4.293	4.205	32.523
1982	0.995	1.748	1.857	5.175	2.676	5.579	5.499	4.795	4.633	32.957
1983	1.090	1.428	2.287	5.808	2.893	6.035	6.048	5.466	5.109	36.165

*Data series for 1960-1969 is also available by contacting the Bureau of Business and Economic Research at ASU (see address below).

Source: Bureau of Business and Economic Research, College of Business, Arizona State University, Tempe, AZ 85287

TABLE 2
ARIZONA ANNUAL GROSS STATE PRODUCT
1970-1983*
(In Billions of Real Dollars)

	Agriculture	*Mining*	*Construction*	*Manufacturing*	*Transportation Communication Public Utility*	*Trade*	*Finance Insurance Real Estate*	*Services*	*Government*	*Total*
1970	0.340	0.535	0.630	1.317	0.648	1.491	1.328	1.057	1.448	8.794
1971	0.380	0.643	0.773	1.344	0.698	1.630	1.479	1.142	1.530	9.619
1972	0.353	0.724	0.919	1.510	0.779	1.800	1.622	1.239	1.595	10.541
1973	0.321	0.754	1.004	1.683	0.872	1.999	1.768	1.364	1.686	11.453
1974	0.493	0.725	0.813	1.637	0.861	1.992	1.684	1.390	1.785	11.380
1975	0.350	0.912	0.616	1.509	0.841	1.966	1.591	1.385	1.830	11.001
1976	0.568	0.890	0.582	1.631	0.907	2.084	1.725	1.481	1.917	11.786
1977	0.482	0.883	0.709	1.820	1.000	2.251	1.977	1.612	1.943	12.677
1978	0.562	0.877	0.902	1.971	1.115	2.493	2.304	1.730	2.023	13.979
1979	0.606	0.815	1.023	2.202	1.137	2.674	2.594	1.915	2.087	15.052
1980	0.588	1.008	0.908	2.410	1.223	2.681	2.640	1.992	2.136	15.586
1981	0.590	1.648	0.855	2.632	1.341	2.822	2.875	2.023	2.194	16.978
1982	0.548	1.239	0.772	2.608	1.287	2.819	3.058	2.074	2.231	16.636
1983	0.576	0.932	0.933	2.923	1.378	2.981	3.340	2.211	2.301	17.575

*Data series for 1960-1969 is also available by contacting the Bureau of Business and Economic Research at ASU (see address below).

Source: Bureau of Business and Economic Research, College of Business, Arizona State University, Tempe, AZ 85287

ECONOMIC ANSWERS PROVIDED BY THE ARIZONA GSP MODEL

Many questions concerning the Arizona economy can be more definitively answered by the Arizona GSP model than by any previous means. From the model, one can determine the timing of the Arizona business cycle and the length and severity of the state's recessions. The model allows a comparison of the GSP to the GNP, showing whether the Arizona economy leads, lags, or moves synchronously with the national economy and whether the Arizona economy outperforms the national economy. The model provides a comparison of the performance of one Arizona industrial sector to another and a comparison of each Arizona industry to its national counterpart. A measure of productivity — output per employee — is also available from the Arizona GSP model and can be compared to national output per employee.

The Overall Arizona Economy, 1960-1983

The Arizona GSP reached $36.2 billion in 1983, an increase of 963 percent since 1960. On an inflation-adjusted basis, the growth was 241 percent, an average of 5.2 percent per year.

Annual growth rates have not been steady, however, since the Arizona economy does follow the business cycle. While real growth was negative in 1974, 1975 and 1982, it exceeded 7 percent in 12 of the last 23 years, peaking at 10.3 percent in 1978. Real growth in 1983 was 5.6 percent.

A review of quarterly data (Table 3) provides a clearer look at both the timing and magnitude of Arizona recession and boom periods. Prior to 1974, only three quarters, all in 1967, had negative real growth. However, the Arizona economy declined for five of six quarters in 1974 and in early 1975. This pattern was repeated when five successive

TABLE 3
PERCENTAGE CHANGE IN ARIZONA QUARTERLY GROSS STATE PRODUCT AT ANNUAL RATE
1970-1983*
(In Real Dollars)

	Agriculture	*Mining*	*Construction*	*Manufacturing*	*Transportation Communication Public Utility*	*Trade*	*Finance Insurance Real Estate*	*Services*	*Government*	*Total*
1970										
1st Qtr	−18.1	−21.7	26.2	−5.5	12.4	10.8	12.7	−0.8	−1.4	3.0
2nd Qtr	−7.7	−0.7	−0.7	−6.0	15.3	3.2	5.7	4.2	3.4	1.4
3rd Qtr	7.2	35.0	−25.9	−14.2	3.2	6.2	4.4	2.4	4.6	1.1
4th Qtr	14.4	57.7	64.5	−11.7	5.1	1.2	10.4	−0.6	3.9	9.4
1971										
1st Qtr	24.5	45.6	25.0	15.5	4.5	12.3	5.7	18.2	6.0	14.1
2nd Qtr	1.7	−22.0	15.0	6.5	18.3	4.8	18.2	6.7	6.8	7.2
3rd Qtr	1.3	−44.0	27.2	0.0	−1.7	21.2	22.2	8.6	5.9	8.0
4th Qtr	27.2	87.1	19.5	22.8	15.1	15.9	14.1	8.9	8.4	19.2
1972										
1st Qtr	−19.5	27.3	30.1	14.5	30.5	0.1	−9.6	4.4	1.1	5.5
2nd Qtr	−37.4	−50.1	6.5	6.9	9.9	8.6	11.2	10.1	0.6	1.7
3rd Qtr	−16.1	65.2	7.4	10.2	21.0	13.2	21.0	10.8	10.4	15.6
4th Qtr	28.9	5.8	4.9	16.0	12.0	15.6	10.7	11.0	−3.6	10.0
1973										
1st Qtr	−56.3	−23.4	15.9	21.4	15.4	17.9	5.8	5.3	12.1	8.5
2nd Qtr	5.1	−7.0	16.8	1.5	5.6	−0.1	8.5	15.9	5.5	5.4
3rd Qtr	−21.1	58.5	−3.5	3.0	10.5	5.2	4.2	9.5	3.8	7.2
4th Qtr	122.4	−0.1	2.6	7.0	−1.3	8.5	−0.4	2.9	13.6	7.3
1974										
1st Qtr	6.8	−24.4	−38.7	−1.0	1.4	−7.6	−20.4	−8.7	4.2	−9.6
2nd Qtr	106.8	−11.0	−28.2	−9.1	−6.9	7.5	1.7	10.0	2.0	1.8
3rd Qtr	38.2	−36.9	−31.3	−7.1	−8.9	−17.1	0.2	−2.3	9.1	−6.6
4th Qtr	16.4	79.0	−45.1	−27.4	−8.5	1.9	−14.5	−1.6	−0.5	−4.5

TABLE 3 *(continued)*

	Agriculture	*Mining*	*Construction*	*Manufacturing*	*Transportation Communication Public Utility*	*Trade*	*Finance Insurance Real Estate*	*Services*	*Government*	*Total*
1975										
1st Qtr.	−165.4	72.7	−34.7	−18.4	−5.4	−11.0	−13.0	−15.6	−0.0	−14.0
2nd Qtr.	−2.2	−10.0	−20.6	2.5	−6.9	5.1	−3.8	12.9	−1.7	−0.7
3rd Qtr.	42.8	−2.5	7.2	26.5	30.6	12.7	5.4	7.8	9.4	13.0
4th Qtr.	30.2	10.8	−4.2	−4.0	−3.1	5.5	4.6	3.9	7.9	4.3
1976										
1st Qtr.	117.9	6.8	−13.6	16.7	19.5	6.2	14.8	12.5	5.6	13.4
2nd Qtr.	62.1	−40.2	−6.8	6.9	−2.6	3.1	−0.3	1.8	4.9	1.4
3rd Qtr.	3.3	7.9	−6.8	−8.3	7.4	6.7	20.3	4.9	−2.5	4.1
4th Qtr.	13.1	29.5	18.8	14.3	−4.0	0.2	10.9	3.3	2.4	7.8
1977										
1st Qtr.	−112.9	−9.7	18.0	17.6	15.4	8.7	17.9	16.9	1.5	4.6
2nd Qtr.	10.2	14.3	37.0	17.9	13.4	18.4	15.2	9.3	0.3	13.8
3rd Qtr.	54.5	−36.7	41.2	7.8	23.2	13.5	7.8	6.1	−0.3	8.7
4th Qtr.	30.1	3.1	21.1	6.2	10.1	−9.4	16.2	8.1	7.4	7.3
1978										
1st Qtr.	35.2	−19.7	20.7	−6.1	−5.1	21.6	11.5	7.0	3.1	7.1
2nd Qtr.	−50.3	53.9	41.3	18.7	29.3	9.9	20.4	3.2	4.7	14.7
3rd Qtr.	53.6	−3.8	6.4	20.0	3.6	8.1	22.7	10.3	8.5	12.9
4th Qtr.	−21.4	−21.5	2.9	6.5	14.5	18.6	16.3	10.5	−0.1	7.2
1979										
1st Qtr.	9.8	−41.4	28.3	19.6	−4.7	0.6	6.3	12.3	8.1	6.0
2nd Qtr.	−20.0	1.6	16.3	−3.2	8.2	2.7	6.1	8.9	−3.9	1.4
3rd Qtr.	99.1	65.3	−1.1	13.5	0.9	11.4	7.6	13.6	5.3	14.8
4th Qtr.	−19.2	−42.4	−13.6	8.3	−3.0	−0.7	21.7	5.7	−2.4	0.6
1980										
1st Qtr.	−13.2	138.1	−10.0	17.5	20.2	−12.5	−18.3	−0.7	1.7	4.8
2nd Qtr.	−32.3	29.0	−38.1	−4.5	7.0	10.9	−3.3	5.7	6.0	1.0
3rd Qtr.	−2.2	−160.5	−4.1	8.9	14.2	−3.2	8.7	−2.0	4.0	−8.7
	21.0	219.1	4.3	24.4	2.9	6.2	12.1	1.2	5.5	19.3
1981										
1st Qtr.	−52.2	170.4	−7.6	7.6	15.1	8.0	2.3	4.2	−0.8	13.7
2nd Qtr.	21.4	17.4	4.2	5.4	6.8	4.5	10.6	−4.2	3.5	6.4
3rd Qtr.	51.8	21.5	−13.1	13.5	13.5	7.3	25.4	7.6	0.3	12.7
4th Qtr.	38.7	13.0	−14.5	−15.6	−1.8	−0.8	−3.6	0.4	4.5	−0.8
1982										
1st Qtr.	−66.3	−53.7	−11.9	0.3	−33.0	−3.2	8.8	4.4	−3.8	−10.1
2nd Qtr.	−40.3	−45.7	−9.1	3.4	18.0	−0.9	7.8	2.7	12.8	−0.8
3rd Qtr.	41.1	−61.3	−14.7	0.9	1.4	−2.7	−4.4	−0.3	−3.9	−5.9
4th Qtr.	0.0	−60.6	9.5	−11.6	−10.7	2.8	1.6	2.9	−5.5	−6.0
1983										
1st Qtr.	4.9	−53.5	34.5	17.9	−9.3	2.0	14.9	12.6	8.3	6.6
2nd Qtr.	−13.2	8.0	43.6	30.0	42.5	16.6	24.1	7.9	−7.9	17.6
3rd Qtr.	−0.1	66.5	24.8	24.4	7.7	11.3	1.6	4.5	22.7	15.0
4th Qtr.	68.5	23.5	6.5	5.4	19.7	7.9	4.4	10.0	7.3	10.6

*Data series for 1960-69 is also available by contacting the Bureau of Business and Economic Research at ASU (see address below).

Source: Bureau of Business and Economic Research, College of Business, Arizona State University, Tempe, AZ 85287 quarters showed economic decline, beginning with the fourth quarter, 1981. In each case, the Arizona economy recovered quickly and strongly. It is clear, however, that Arizona is not immune to severe and lengthy recessions.

Arizona GSP Compared to GNP

The Arizona GSP contributed 1.1 percent of the U.S. GNP ($3.3 trillion) in 1983. Growth in real Arizona GSP has been more than double that of real GNP since 1960. Since 1967, the growth in Arizona GSP has exceeded the growth in GNP in all but three years, usually ranging from three to six percentage points higher (see Figure I).

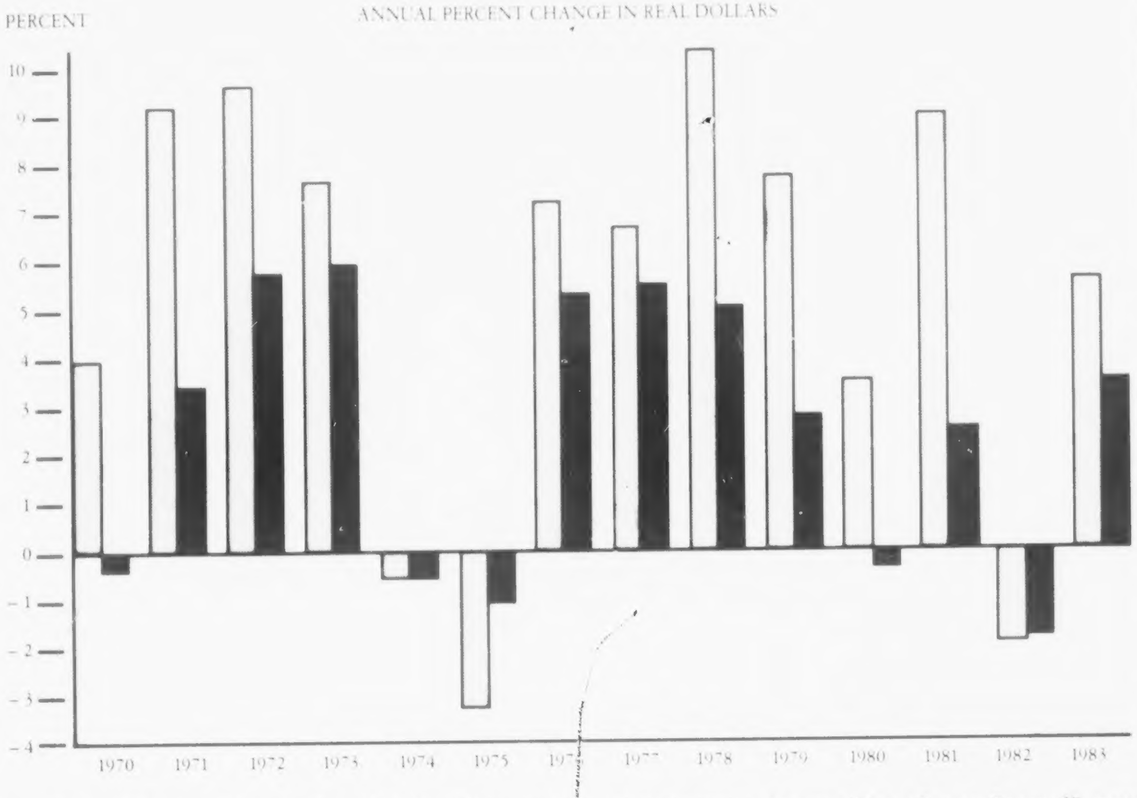
Each of the three years that the Arizona economy did not outperform the U.S. economy was a recessionary year: 1974, 1975 and 1982. Thus, not only can Arizona suffer from recessions, but these recessions can be more severe than those felt nationally. On the other hand, Arizona's gross product continued to grow in 1970 and in 1980, years in which a short, mild national recession occurred.

The quarterly data (Figure II) reveal that the timing of the Arizona downturns and recoveries is nearly identical to that of the nation. However, the magnitude of the growth or decline can be much different. The data indicate that while Arizona suffers more severely during lengthy, intense national recessions, the state's economy continues to grow during mild, short national recessions and greatly outperforms the national economy during recoveries and boom periods.

Arizona outperforms the national economy for one fundamental reason: The state enjoys more rapid population and employment growth. If real GSP and GNP are adjusted by either of these factors, Arizona's superiority disappears during the 1960-1983 period. However, since 1976 the

FIGURE I
ARIZONA G.S.P. AND U.S. G.N.P.

ANNUAL PERCENT CHANGE IN REAL DOLLARS



Source: Bureau of Business and Economic Research, College of Business, Arizona State University, and *Survey of Current Business*, Bureau of Economic Analysis, U.S. Department of Commerce, July 1983, Vol. 63, No. 7

Arizona economy has outperformed the national economy on this growth adjusted basis. Thus, in recent years the Arizona economy has moved from an inferior position to a position in which it has a more robust and productive economy on a population or employment growth adjusted basis.

Arizona's Industries

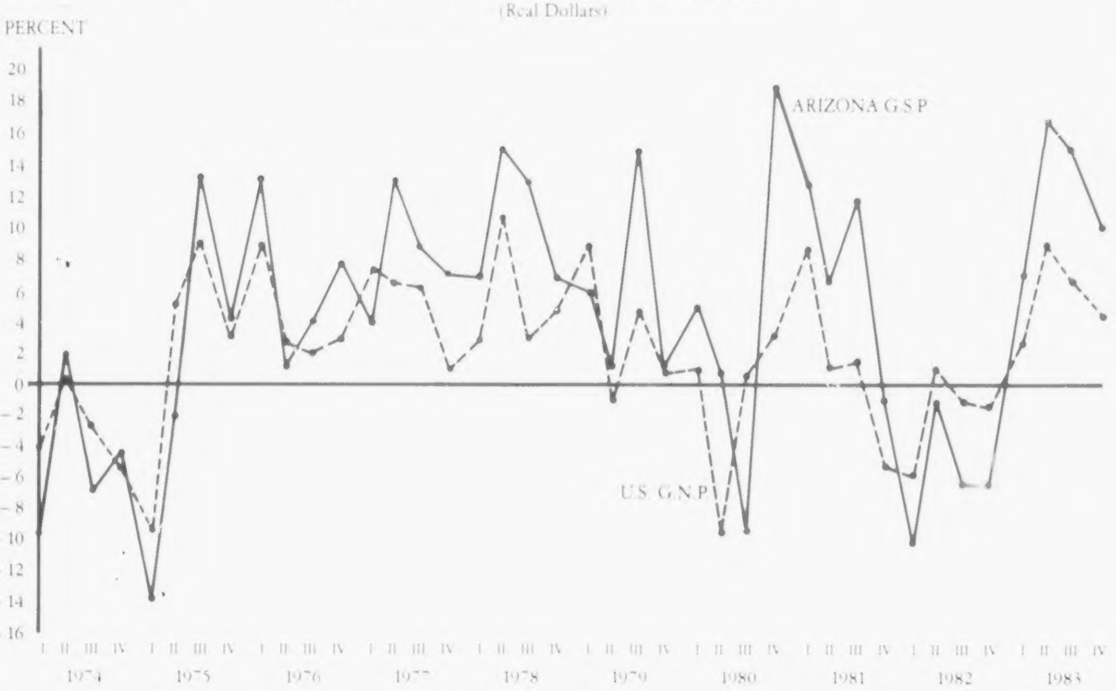
The Arizona economy comprises nine industries. In terms of real GSP, the finance, insurance, and real estate (FIRE) sector was the largest in 1983, with a 19 percent share of the overall GSP, followed by the manufacturing and trade sectors, each with a 17 percent share. The smallest industry was agriculture, with a 3 percent share, followed by mining and construction, each with 5 percent shares.

The agriculture, mining, construction, and government sectors are all losing importance in the state's economy as the manufacturing and FIRE industries gain in significance. The output of the agriculture and mining industries has fluctuated widely over the years, each growing more than 50 percent in some years, only to decline by more than 25 percent in other years. Construction output also fluctuates but not as much and in a more predictable manner: with the business cycle. The real 1983 output of each of these sectors was less than in prior years. In contrast, the government sector continues to grow every year but at a much slower rate than that of the overall Arizona economy.

While susceptible to the business cycle, the growth industries of manufacturing and FIRE have enjoyed rapid real growth rates in most years, sometimes exceeding 10 percent. Other industries — transportation, communications,

FIGURE II
ARIZONA G.S.P. AND U.S. G.N.P.

QUARTERLY PERCENT CHANGE AT ANNUAL RATE
(Real Dollars)



Source: Bureau of Business and Economic Research, College of Business, Arizona State University, and *Survey of Current Business*, Bureau of Economic Analysis, U.S. Department of Commerce, July 1983, Vol. 63, No. 7.

and public utilities (TCPU); trade; and services — have generally grown at approximately the rate of the overall Arizona economy.

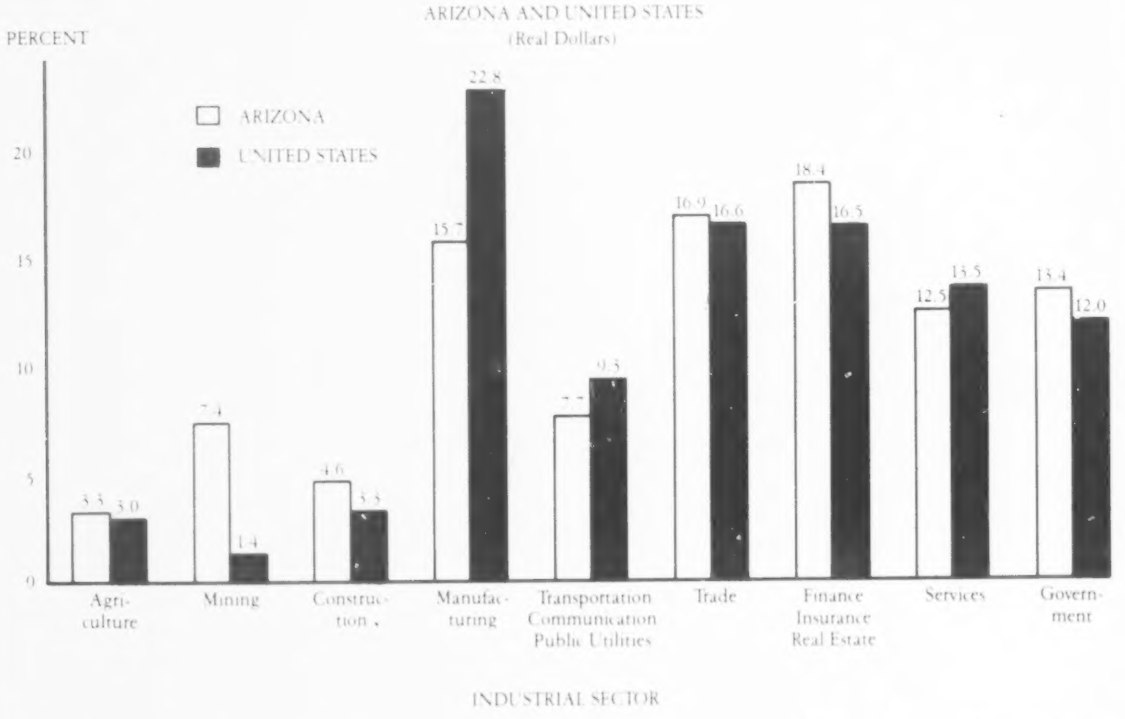
Arizona's Industrial Structure Compared to That of the United States

Arizona's industrial mix is considerably different from that of the United States, as illustrated in Figure III. With the exception of the TCPU, services, and manufacturing sectors, each sector in Arizona is relatively more important than its national counterpart. Arizona's growth in manufacturing is a direct contrast to the national experience, in which manufacturing's share has been steady for many years. Despite this national stagnation, Arizona's manufacturing industry remains approximately one-third smaller. The direction of most of the other industries is the same nationally as in Arizona; for example, the FIRE sector is gaining in importance nationally as it is in Arizona, while the construction sector is gradually becoming relatively less significant. The evolution of the Arizona economy's composition does not appear to be in a direction that will eventually make it identical to that of the U.S. economy.

Arizona Productivity

In current dollars, output per employee in Arizona is $33,500, a 249 percent increase since 1960; on an inflation-adjusted basis, growth has been only 10 percent since 1960. From a 1964 peak, this productivity measure actually declined through 1974-75. Since then, Arizona produc-

FIGURE III
1982 INDUSTRY SHARE OF TOTAL PRODUCT



Source: Bureau of Business and Economic Research, College of Business, Arizona State University; and *Survey of Current Business*, Bureau of Economic Analysis, U.S. Department of Commerce, July 1983, Vol. 63, No. 7.

tivity has improved, a key factor in explaining why the Arizona economy has outperformed the national economy in recent years, even on a population or employment adjusted basis.

Productivity varies widely by industry, with output per employee several times greater in the mining and FIRE industries than in the other sectors. Lowest productivity is in the services, trade, and government sectors.

There are also wide sectoral differences in improvement in this productivity measure. The mining sector has sharply increased its output per employee in recent years. Steady but less spectacular improvements have occurred in the manufacturing and TCPU sectors. In contrast, productivity in the services sector has continued to lessen in recent years.

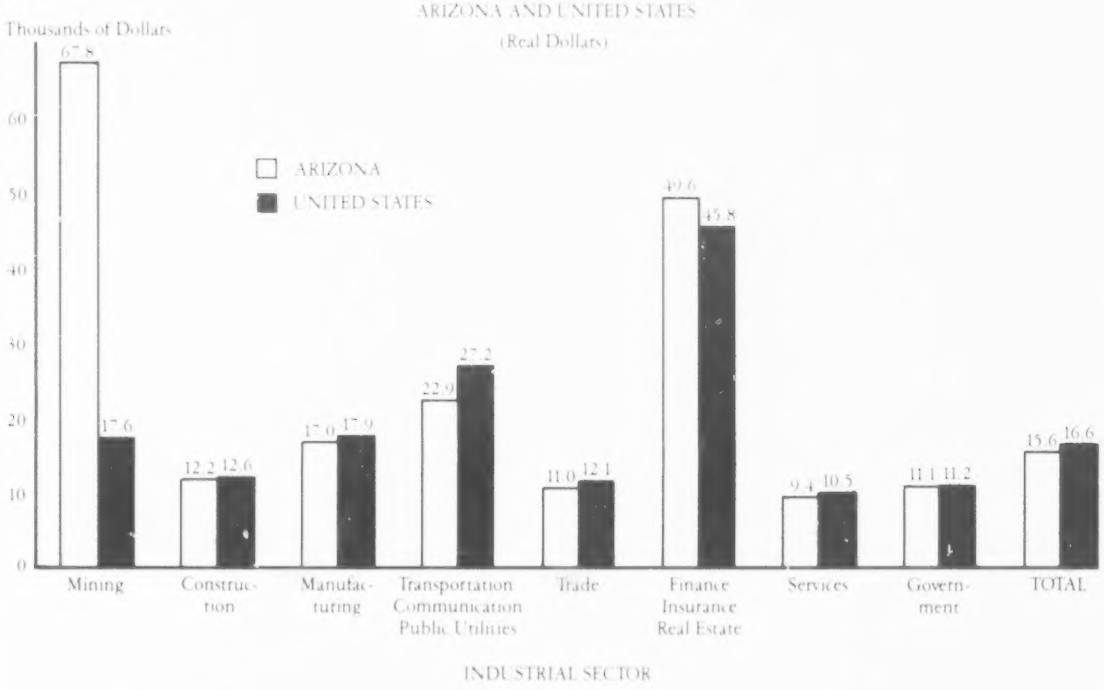
Arizona productivity, by sector, is shown in Figure IV in comparison to national output per employee. Productivity is lower in Arizona in all except the mining and FIRE sectors; the difference in the TCPU sector is 14 percent. The discrepancy in the mining sector is a reflection of the different nature of this industry: Comparing copper mining productivity to productivity of oil, gas, and coal extraction is akin to comparing apples and oranges.

SUMMARY

This article's relatively brief review of the information available from the Arizona GSP model has revealed a number of items that are important in policy-making and planning by Arizona's businesses and governmental entities:

- The Arizona economy follows a business cycle nearly identical in timing to that of the national economy.

FIGURE IV
OUTPUT PER EMPLOYEE, 1982



Source: Bureau of Business and Economic Research, College of Business, Arizona State University, and *Survey of Current Business*, Bureau of Economic Analysis, U.S. Department of Commerce, July 1983, Vol. 63, No. 7

- During national periods of recovery and expansion, the Arizona economy invariably outperforms the national economy.
- During mild and short national recessions, growth in Arizona GSP merely slows.
- When the national economy falls into a severe, lengthy recession, Arizona's economy tends to falter even more than the national economy.
- Most of the explanation for Arizona's GSP outperforming GNP is due to Arizona's rapid population and employment growth.
- In recent years, however, Arizona's GSP growth, even when adjusted for population or employment growth, has been superior to adjusted GNP growth, in part due to Arizona's recent gains in productivity.
- The manufacturing industry and the finance, insurance, and real estate sector are already Arizona's largest industries, in terms of share of GSP (along with the trade sector) and are also the fastest growing industries.
- Arizona's traditional industries — agriculture, mining, and government — are losing importance as a share of the overall economy. Their output, however, is not necessarily declining.
- While increasing more rapidly in recent years, Arizona's productivity remains lower than that of the United States.

J.W. Kendrick and C. M. Jaycox, "The Concept and Estimation of Gross State Product," *Southern Economic Journal* (October 1965): 153-168.

Richard E. Weber, "A Synthesis of Methods Proposed for Estimating Gross State Product," *Journal of Regional Science*, Vol. 19, No. 2 (1979): 217-230.

Herbert M. Kaufman and Eric Anderson, "Estimating Gross State Product for Arizona," *Arizona Business* (August-September 1974): 3-10.

W. L. L'Esperance and Daniel Fromm, "A Note on Estimating Gross State Product," *Growth and Change* (April 1974): 47-48.

Mobile Home and Travel Trailer Parks In the East Valley: A Census

STEPHEN K. HAPPEL
TIMOTHY D. HOGAN
DEBORAH SULLIVAN
HEIDI ROWE
LAURA SMITH

The annual winter migration of elderly people to the Phoenix area exerts a significant economic impact on the Valley of the Sun. For example, 1983 total expenditures by "winter resident" households were calculated at $136 million, assuming an average length of stay of four months, monthly expenditures of approximately $1,000 per household, and a "conservative" estimate of 35,600 households.[1]

The annual winter influx of elderly people to East Valley mobile home and travel trailer parks benefits local businesses but also presents planning problems for local officials. An estimated 56,500 people were classified as "winter residents" in a census of these parks conducted during the first week of February 1984. This article reports the results of that census.

Stephen K. Happel and Timothy D. Hogan are faculty members in the Economics Department of the College of Business, Arizona State University. Deborah Sullivan is Associate Professor of Sociology at ASU. Heidi Rowe is a graduate assistant in the Bureau of Business and Economic Research, ASU College of Business. Laura Smith is an Honors Program student in the ASU College of Liberal Arts.

Also assisting with the survey were ASU students Laura Felderline, Kathleen Stonefeld, Sung Ling Lin, and Cynthia Brown.

Sizable numbers of these households are located in Sun City, Glendale, and Scottsdale. However, the largest concentration is in the East Valley, along the 20-mile Apache Trail corridor from Mesa to Apache Junction. The volume of winter visitors into the corridor over the past 10 years has presented many business and investment opportunities, evidenced by the proliferation of RV parks, shopping centers, restaurants, and health care facilities catering to the elderly. At the same time, the influx has created peak-load planning problems for local officials concerned with water and sewage, traffic and transportation, and other public services.

Estimates of the number of winter visitors to the East Valley have varied widely during the past several years, ranging from 50,000 people to 125,000 people each winter. This uncertainty about the number of winter visitors served as stimulus for a census of mobile home and travel trailer parks in Mesa, East Mesa, and Apache Junction during the first week of February 1984. The purpose of this article is to report on the results of that census.

CENSUS METHODOLOGY

This census was not an attempt to enumerate *all* winter residents in the East Valley. Those staying in motels, hotels, or seasonal apartment complexes, with friends or relatives, on federal land, or in their own second homes were not contacted due to the time and costs involved. As a result, the estimates serve as a base rather than as an upper limit on the number of temporary residents in the East Valley.

Park Listing

A list of 236 established parks was compiled from the directories of mobile home and travel trailer park associations and from local phone directories. Mesa city officials also provided information, as did Mountain West Research, Inc., a local research firm.[2] The study area was divided into three districts:

District I: Mesa — Price Road to Power Road/Bush Highway
District II: East Mesa — Power Road to Meridian Road
District III: Apache Junction (Pinal County) — Meridian Road to Mountain View Road

Table 1 presents the 236 parks alphabetically, by district, as well as listing new parks that are either under construction or recently completed. The new parks are not included in the census. Surveyed parks range in size from 3 spaces to 1,750 spaces (pads). The vast majority of parks are "adult-only."

Conducting the Census

The first week of February was chosen as the survey period because questionnaires distributed in selected parks during the 1980-81 and 1982-83 seasons indicated this to be the peak time for winter visitors. These temporary residents, many of whom are from northern states and Canada, start to appear after Thanksgiving. Although some stay only a few weeks, others remain seven, eight, nine months or more before returning to their "permanent" (legal) place of residence. The average length of stay is four months, with most winter residents departing the East Valley by Easter.

Members of the survey team attempted to telephone each of the 236 parks. A few owners and managers did not want to answer any questions, some had no current telephone listings, and others could not be reached after repeated calling. For these parks, a surveyor drove to the site and counted the spaces. Table 1 indicates parks where only a count of spaces was conducted.

The Questionnaire

When surveyors were able to reach the parks by telephone, they asked the owner or manager the following questions:

1. In what year did your park first open?
2. Is your park an adult-only park?
3. How many mobile home spaces are in your park, and how many are currently occupied?
4. How many travel trailer spaces are in your park and how many are currently occupied?
5. Are any of your spaces permanently sold? If so, how many of these are currently occupied?
6. For your currently-rented spaces, how many leases are (1) yearly, (2) monthly, (3) weekly or daily?
7. How many of your spaces are currently occupied by year-round residents, i.e., people staying longer than nine months?
8. In general, are your park's winter visitors arriving sooner or later compared to last year? Why?
9. In general, do you expect more or fewer winter visitors at your park this year compared to last? Why?
10. In general, are there more or fewer winter visitors in the East Valley as a whole this year compared to last? Why?

Some owners or managers answered only the first four questions. Others would not answer the questions about leases, the number of year-round residents or when people were arriving. In the following section on census results, occupancy rates and other percentages are based only on responses to each particular question.

CENSUS RESULTS

Table 2 comprises estimates, both for the entire East Valley and for its three component districts, of the number of mobile home and travel trailer spaces, occupancy rates, leasing arrangements and the proportion of park residents staying nine months or less.

Number of Spaces

The number of mobile home spaces is estimated to be 19,680, while the number of travel trailer spaces is estimated to be 19,627, yielding a total of 39,307.[3] If spaces in the new parks are also considered, the total becomes 46,302.

Occupancy Rates/Leasing Arrangements

The occupancy rates for mobile home and travel trailer spaces are nearly identical for the East Valley as a whole. The highest rates are found in Mesa and East Mesa where the parks are older and continue to draw back many of the same people year after year. This is reflected in the leasing arrangements, with more than 50 percent of the leases falling into the "yearly" category. On the other hand, occupancy rates in Apache Junction are somewhat lower, especially for mobile home spaces. The parks there are newer, and many are still in the process of establishing long-term ties. A greater percentage of leases are monthly or weekly compared to Mesa and East Mesa.

TABLE 1
MOBILE HOME AND TRAVEL TRAILER PARKS IN THE EAST VALLEY

DISTRICT I
Price Road to Power Road/Bush Highway

1. A-1 TC*
2. All American TC*
3. Alma Gardens
4. Alma Meadows
5. Ambassador Downs TP
6. Apache MP and Motel
7. Apache Tears MP*
8. Apache TP
9. Apache Villa*
10. Apache Wells
11. Apache Wells TR
12. Apache West Mobile Village
13. Aztec Travel TR
14. Beverly TC
15. Bonds TP
16. Brentwood Mobile Manor
17. Brentwood West
18. Broadmoor MHP
19. Casa Encanta MHP
20. Castillo Nuevo MP
21. Cibola MHP
22. Citrus Gardens MP
23. Citrus Grove Travel Court
24. Cluff TP
25. Conquistador Village
26. Copperstate TC*
27. Coronado MHP
28. Country Club Village**
29. Country Cousins Mobile Mecca**
30. Cypress Estates MHP
31. Deserama Mobile Ranch
32. Desert Wells TC*
33. East Main TC*
34. Eastway MP*
35. El Mirage MP
36. Fiesta Travel TP
37. Fountains East MHP
38. Furr's TP*
39. Garden Spot #1
40. Garden Spot #2
41. Garden Spot #3
42. Glen MH, Inc.*
43. Good Life Travel TP
44. Green Acres TP**
45. Hacienda De Valencia
46. Hawaiian MHP**
47. Holiday Village MHP
48. Imperial MHP
49. Joshua Tree**
50. Karmella
51. Kay-Bee Mobile Villa**
52. Kupper's Shady Acre*
53. La Casita MP

DISTRICT II
Power Road/Bush Highway to Meridian Road

1. Apache Acres TP
2. Apache TP
3. Arizona Acres MH Resort
4. B. J. Trailside Manor*
5. Blue Star MHP
6. Brentwood Southern
7. Cactus Wren MHP
8. Casa Serena MHP
9. Century Motel and TP*
10. Cherokee Mobile Village
11. Cielo Grande MHP
12. Copa Mobile Ranch
13. Coral Sands Mobile Estates
14. Dana's Trailer Ranch
15. Desert Dawn
16. Desert Spring MHP
17. Desert Village MP
18. Dollbeer MH Ranch
19. Driftwood Mobile Port
20. Eastway Mobile Court
21. Holiday Palms MHP
22. Juanita MHP**
23. Lost Dutchman MH and Travel TP
24. Pacific Mobile Manor
25. Patio Gardens MHP**
26. Ranchway TR Corral*
27. Rambler MP
28. Saguaro MHP*
29. Shady Rest MHP
30. Silver Sands TR
31. Silver Spur Ranch
32. Silver Spur Village
33. Spanish Gold
34. Stewart Mt. TP*
35. Sun Valley Park
36. Sunny Acres Trailer Village
37. Sunny Crest*
38. Sunny Skies MP*
39. Sunset Trail Ranch
40. Superstition Resort
41. Superstition Shadows MHP
42. Topaz Motel and MHP
43. Twin Acres Family MP**
44. Twin Knolls MH Villa
45. Valley Palms MHP
46. Western Acres MP
47. World of Arizona Skies

La Casa Trail Mobile Villa***
Monte Vista Travel TR***
Pueblo Grande***

DISTRICT III
Meridian Road to Mountain View Road

1. Anderson MP**
2. Apache East Estates
3. Apache Junction MHP
4. Apache Junction RV Resort (Roadhaven)
5. Apache Palms TP*
6. Apache Mountain Shadows
7. Apache Skies MHP
8. Arizona Sweets MHP
9. B and R TP
10. Baywood MP
11. Big Mountain MP**
12. Bonita Vista MP
13. Cactus Garden MHP
14. Carefree Manor Travel TR
15. Casa Del Camino — East**
16. Cestin Valley TP
17. Chaparral Mobile Ranch
18. Cortes Travel TP
19. Country Villa MHP**
20. Countryside Travel TP
21. Dakota Mobile Village
22. Del's TP
23. Denali Park Estates
24. Desert Gardens MHP
25. Desert Holiday RV Park*
26. Desert Park
27. Desert Queen Travel TP
28. El Mar TC
29. Fifth Avenue TP**
30. Foothills TP*
31. Ginnan's RV Park**
32. Gold Dust MH Resort
33. Golden Acres Mobile Manor
34. Golden Days Leisure Park
35. God's Little Acre MHP
36. Grand View Court**
37. Happy Days Travel TP
38. Huff's MHP
39. Husky Hollow MP
40. Ironwood Mobile Court
41. John Fowler's Lost Dutchman TP
42. Klahanne Park
43. Lamplighter Mobile Village
44. La Siesta MHP
45. Lee's TP*
46. Marge's*
47. Melrose TP*
48. Meridian MHP
49. Mountain View Mobile Ranch
50. Min-ati MHP*
51. Ocotillo MP

(continued on page 16)

TABLE 1 (continued from page 15)

DISTRICT I
Price Road to Power Road/Bush Highway

54 Lazona TC
55 Little Plymouth TC*
56 Littleman TC*
57 Mesa Gardens MHP
58 Mesa Grande Trailer Ranch**
59 Mesa Regal RV Resort
60 Mesa Shadows MHP
61 Mesa Shadows East MHP
62 Mesa Lodge MHP**
63 Mesa Village MHP*
64 Mills TC*
65 Mondak MHP
66 New Hope MHP
67 New Hope TR Park
68 Orangewood Shadows Travel TR
69 Palm Gardens MHP
70 Paradise Palms Travel Resort
71 Park Place TR
72 Redwood Trailer Gardens**
73 Rio Rita*
74 Royal Palm Village**
75 Shady Grove Travel Park
76 Southern Palms Travel Park
77 Suit You MHP
78 Sundial MP
79 Sunlife Travel TR
80 Sunrest MP
81 Sunrise Village MHP
82 Sunrise Vista MHP
83 Towerpoint Resort
84 Trail Riders Holiday Park
85 Trailing R Mobile Ranch
86 Travel Trailer Village
87 Tribbey's TP*
88 Twin Palms Travel TP
89 Val Vista Village
90 Vale TP**
91 Velda Rose Gardens
92 Vista Motel and TC*
93 West Mesa TC**
94 West Quest MP**
95 Windsor MH Estates
96 Wintercove TP*
97 X-Bar "B" TP
98 Yucca Trailer Ranch

Palmas Del Sol***

DISTRICT II
Power Road/Bush Highway to Meridian Road

Sierra Mobile Manor***
Sunny Lake Estates***
Superstition Country***
Trails West MHP***
Valle De Oro***

DISTRICT III
Meridian Road to Mountain View Road

52 Ogrecta TP*
53 Palms TP
54 Palo Verde Hills MHP
55 Paradise MHP
56 Park Place East
57 Pleasant Acres TC
58 Pueblo Mobile Manor
59 Quiet Village Apt. and TC
60 Raindance MHP
61 Rainey's Apts. and Trailers*
62 Roadrunner Travel TC
63 Rock Shadows Travel TR
64 Rock Shadows Travel TR Annex
65 Round Up MH Ranch*
66 Saguaro TP
67 San Marcos Travel TR*
68 Sand Tanks MP**
69 Sierra del Saguaro TP
70 Sierra Leone Adult MHP
71 Sloan MHP
72 Sommerset TP*
73 Sun Acre MHP
74 Sundowner TP
75 Superstition Lookout RV Park
76 Superstition Mobile Ranch
77 Superstition Mobile Village
78 Superstition Mountain View Court*
79 Superstition View East TP*
80 T & S Mobile Village*
81 Teepee MP*
82 Throne MHP*
83 Tomahawk MP
84 Trail's End MHP*
85 Trailer Ho Park
86 Venture Out
87 Warner Park**
88 Weaver's Needle RV Park
89 Whatever TP**
90 Wickiup MH and TP
91 Zim's TP**

Desert Sun***
Silverado Estates***
Stevensville Trailer Ranch***
Sunrise RV Resort***

TC — Trailer Court; TP — Trailer Park; TR — Trailer Resort; MP — Mobile Park; MHP — Mobile Home Park

* Only data on the total number of spaces
** Not adult-only
*** Under construction or just completed

Source: Census conducted by the authors, February, 1984

Number of Winter Residents

With these data, the number of winter resident households in East Valley parks can be estimated. By multiplying the number of spaces (39,307) by the occupancy rate (94.7 percent) and then by the percentage of temporary residents (76 percent), an estimate of 28,290 households is calculated. If each of these households contains an average of two people, and assuming that the visitors occupying spaces during the first week of February are the only people to occupy those spaces during the entire 1984 season, the number of winter residents in the East Valley parks is estimated to be 56,580. Since some winter residents spend only part of the winter season in the East Valley and then move on to other areas, the total number who stay in the parks over the entire winter season is even greater.

Opinion Questions

Table 3 presents results for the opinion questions on arrival time and number of winter visitors this year compared to last; again, notable differences appear across districts. Only 17 percent of the respondents in Districts I and II felt that winter visitors were arriving later this year, whereas the figure was 36 percent in District III. Also, 30 percent of the respondents in District III stated that there were fewer winter visitors in their parks this year, relative to only 6 percent of District I respondents and 10 percent of District II respondents.

These differences can be explained by the higher occupancy rates and more established nature of the parks in Districts I and II. Owners and managers in District III stated that some of their renters from last year shopped around for a better price or moved into one of the newer parks. Indeed, some concern was expressed about an overbuilding of parks in the Apache Junction area, even though the majority of respondents in all three districts felt that more winter visitors resided in the corridor this year than in 1983.

FUTURE CONSIDERATIONS

During the next decade, the growing number of elderly, coupled with extended pension and retirement plans, will probably sustain the strong migration of winter residents into Arizona in general and into the East Valley in particular. The planning problems caused by this migration will also intensify. Because population estimates are needed on an annual basis, this census of East Valley parks will be conducted each February.[4] In 1985, a census of West Valley parks will also be conducted if resources are available.

The ultimate goal is to conduct a *complete* census of all winter visitors to the entire Valley of the Sun. Such a census would involve not only the mobile home and travel

TABLE 2
EAST VALLEY MOBILE HOME/TRAVEL TRAILER PARKS
NUMBER OF SPACES, OCCUPANCY RATES, LEASING ARRANGEMENTS,
AND NUMBER OF TEMPORARY RESIDENTS

	Total	*District I*	*District II*	*District III*
1. a. Number of mobile home spaces	19,680	10,865	4,972	3,843
b. Occupancy rate (percent)	94.7	95.5	98.0	85.1
2. a. Number of travel trailer spaces	19,627	10,064	1,100	8,463
b. Occupancy rate (percent)	94.8	98.5	96.1	90.1
3. a. Percent yearly leases	54.0	58.0	54.0	46.0
b. Percent monthly leases	44.0	41.0	44.0	50.0
c. Percent weekly leases	2.0	1.0	2.0	4.0
4. Households staying nine months or less				
a. Number of households	28,290	14,613	4,630	9,047
b. As a percent of total occupied households	76.0	72.0	78.0	83.0

Source: Census conducted by the authors, February 1984.

trailer parks, but also the motels, hotels, apartment complexes, and campgrounds mentioned earlier. It would attempt to measure how often spaces and rooms turn over, in addition to the number that are occupied during the first week of February. Only then will the winter resident migration be properly documented and its economic impacts accurately assessed.

TABLE 3
CENSUS OPINION QUESTIONS
RESPONSE PERCENTAGES, BY DISTRICT

	District I	*District II*	*District III*
1. Compared to last year, are your park's winter residents:			
a. Arriving sooner	31%	38%	34%
b. Arriving later	17	17	36
c. No change	52	45	30
2. Compared to last year, in your park, are there:			
a. More winter residents	14	14	11
b. Fewer winter residents	6	10	30
c. No change	80	76	59
3. Compared to last year, in the Mesa/Apache Junction area, are there:			
a. More winter residents	57	66	53
b. Fewer winter residents	29	17	30
c. No change	14	17	17

Source: Census conducted by the authors, February 1984.

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[1] Stephen K. Happel, Timothy D. Hogan, and Deborah Sullivan, "The Social and Economic Impact of Phoenix Area Winter Residents," *Arizona Business*, First Quarter 1983, 3-10. The estimate of 55,000 households was obtained from *Foresight 80* and, as the article reveals, this estimate more accurately reflects the number of winter resident households in the East Valley than the total number throughout the Phoenix area.

[2] These parks have either an owner, manager, or tenant association and are an organized entity. Certain areas in the East Valley, such as Desert Sands and Mesa East, consist of a large number of mobile home spaces and appear to be organized parks. However, they are subdivisions in which people own their lot and home. These areas are not included in our census since the people living there do not consider them to be parks.

[3] In the 1983 *Phoenix Metropolitan Housing Study*, Mountain West Research, Inc., estimates 18,500 mobile home spaces and 23,800 travel trailer spaces in the East Valley. The discrepancies with the Table 2 totals can be explained, in part, by Mountain West's inclusion of some parks outside the Apache Trail corridor and, in part, by Mountain West's use of aerial photography to estimate spaces when telephone contact could not be made, thereby including new parks in its totals. A problem is presented by the fact that owners or managers may adjust the number of spaces in their parks, shifting between larger mobile home lots and smaller travel trailer lots in response to demand conditions. This means the number of total spaces in an individual park can vary, even over a short period of time.

[4] Anyone who knows of a park that has not been included in the Table 1 list should contact the authors at the College of Business, Arizona State University, Tempe, AZ 85287, so that the park may be included in next year's survey.

ARIZONA SALES OF ELECTRICAL POWER
(In Millions of Kilowatt Hours)

	1984	*1983*	*Percent Change From Prior Year*	*Percent Change From Prior Month*
January	2511.9	2193.2	+14.5%	+2.5%
February	2306.7	2085.2	+10.6	−8.2
March	2376.1	2202.6	+7.9	+3.0
April	2351.6	2150.0	+9.4	−1.0

Source: Arizona Power Authority (based on reports from major suppliers).

Arizona Food Cooperatives and Their Patrons

DAVID R. GOURLEY
NABIL RAZZOUK
SUSAN E. DODD

The recent resurgence of food cooperatives nationwide prompted this study of Arizona's food co-ops. It revealed that the average co-op patron is a young (25-to-34 years old), well-educated, low-income, white female who is health conscious. This article analyzes her motivation and buying behavior in addition to exploring the history and nature of this non-conventional retailing form.

David R. Gourley is Associate Professor of Marketing in the College of Business at Arizona State University. Nabil Razzouk is Associate Professor of Marketing at California State College, San Bernardino. Susan E. Dodd is Administrative Systems Auditor for Intel Corporation.

The cultural changes of the 1960s and the sluggish economy of the 1970s generated a wave of new retailing forms that catered specifically to the growing number of low-income consumers. Today, shoppers in search of bargains and lower prices might visit a food cooperative, a swap meet, a garage sale, a flea market, a used-product outlet, a grocery warehouse, or a similar alternative to conventional retailing.[1,2,3] Most of these alternatives capitalize on the shopper's diminishing concern with brand and store loyalty and on their desire to obtain the best buy for their money.

Kotler recognized the importance of these emerging trends and called on marketing academicians to turn some of their attention to the study of uncommon and non-conventional retail institutions that serve the low-income and disadvantaged shopper.[4] Because the marketing literature is void of information on the growing phenomenon of food cooperatives, the purpose of this article is to explore the history and nature of this non-conventional retailing form. In addition, through a study of Arizona food cooperatives, a shopper's profile is developed, and buyer motivation and behavior are analyzed.

THE ORIGIN AND NATURE OF FOOD CO-OPS

The consumer cooperative dates back to 1844 when 28 weavers in Rockdale, England, joined together to form a business that would facilitate the procurement of "honest goods" at lower costs. Because no organizational precedents for such a venture existed at that time, the weavers developed organizational guidelines that have become the basis for most consumer cooperatives worldwide.[5] The "Rockdale Principles" are: 1) open membership; 2) one man, one vote; 3) dividends paid on the basis of patronage; and 4) sale for cash at market prices.[6] Additional practices that sustain modern cooperation include: 1) neutrality in race, religion, and politics; 2) constant cooperative education; and 3) constant cooperative expansion.[7]

The contemporary co-op movement grew out of the cultural changes of the 1960s, when young adults rejected the values of middle-class suburban affluence and dropped out of the world they were to inherit. They soon faced the problem of supporting themselves on low incomes and were forced to consider economic alternatives undreamed of by their parents. The concept of consumer cooperatives was rediscovered and espoused by these rather disadvantaged consumers. The spiraling inflation of the 1970s, combined with a physical fitness and health food orientation, sustained interest in the co-op movement. With the deep recession of the early 1980s, co-op patronage surged ahead again.

As with cooperative movements of the past, today's co-ops are consumer-owned, with the members creating and shaping the individual organization.[8] According to Thomas Laichas, a co-op is "an association whose members turn the traditional business incentive—capital gain—on its ear. Because the owner is also the customer, the new business incentive is to provide high quality goods or services at the lowest possible price."[9]

Thus, the primary concern of the co-op is the consumer/member. The co-op's necessary elements are a common need and interested consumers who will work together to see that the need is met well. The food co-op is one type of consumer cooperative that endeavors to provide quality food at money-saving prices. Savings from 15 percent to 50 percent are achieved through bulk purchases of quality merchandise and the active participation of co-op members in the day-to-day operation of the outlet. In most cases, members initially pay a small, one-time fee to join the co-op. Then, in order to retain an active member status, they are required to work a specified number of hours each week. Members stock the shelves, weigh their own produce, record the prices, and bag the unprocessed foods bought in bulk.[10]

Food co-ops range in size from small, four-family buying clubs to huge cooperatives, such as the 96,000-plus-member Consumer Cooperative of Berkeley, Calif.[11] The movement is as diverse as the types of food products offered, and the success of each operation depends on the group's organizational abilities, decision-making capabilities, and participative and communication skills.

A STUDY OF ARIZONA FOOD COOPERATIVES

The purpose of the study was to develop a shopper's profile and to identify buyer motivation and behavior. The survey population included all current members and walk-in non-members of three Arizona food co-ops, two located in the greater Phoenix area, the third in Tucson. The sample for the direct mail portion of the study consisted of active[12] and inactive co-op members and was drawn from lists supplied by the three cooperatives.

To generate preliminary interest, an explanatory letter was mailed or handed to each member of the sample prior to the mailing or administration of the questionnaire. The questionnaire was then distributed both through the mail and by in-store intercepts. Shoppers at the two Phoenix-area co-ops represented 78 percent of the 565 respondents, while Tucson shoppers accounted for 22 percent.

Demographics

This section presents a demographic profile of the study's respondents. When possible, they are compared to the populations of both metropolitan Phoenix and Tucson.

Sex. Of the 565 respondents, 331 (63.3 percent) were female (see Table 1). While Phoenix and Tucson are almost equally populated by males and females, the sample was nearly two-thirds female. A possible explanation for this discrepancy concerns societal norms: Even today, our society dictates that grocery shopping be considered a female activity, rather than a male activity.

TABLE 1
SEX OF CO-OP SHOPPERS
(Compared to Phoenix and Tucson Demographic Data)

Sex	*Sample Percent*	*Phoenix Percent*	*Tucson Percent*
Male	37	48	49
Female	63	52	51

Source: Survey conducted by the authors, Spring, 1982; *Inside Phoenix*, 1982, p. 13; *Tucson Trends*, 1982, p. 13.

Age and Distance from Co-op. The largest percentage of respondents ranged in age from 25 to 29 years old, and more than 73 percent of all respondents were under 35 years old (see Tables 2 and 3 for a comparison of these figures to Phoenix and Tucson demographic information). A likely reason for the high percentage of under-35 shoppers is the proximity of the two largest co-ops to the state universities. This is further supported by the fact that 40.7 percent of the respondents lived two miles or less from their co-op (see Table 4).

TABLE 2
AGE DISTRIBUTION OF CO-OP PATRONS
(Compared to Phoenix Demographic Data)

Age Group	*Sample Percent*	*Phoenix Percent*
18 - 24	21	19
25 - 29	32	14
30 - 34	20	10
35 - 39	9	9
40 - 49	8	13
50 - 64	6	20
65 +	4	15

Source: Survey conducted by the authors, Spring, 1982; *Inside Phoenix*, 1982, p. 11.

TABLE 3
AGE DISTRIBUTION OF CO-OP PATRONS
(Compared to Tucson Demographic Data)

Age Group	*Sample Percent*	*Tucson Percent*
18 - 24	21	20
25 - 34	55	22
35 - 44	14	15
45 - 64	6	26
65 +	4	17

Source: Survey conducted by the authors, Spring, 1982; *Tucson Trends*, 1982, p. 15.

TABLE 4
DISTANCE OF PATRONS FROM CO-OP

Miles	*Sample Percent*
1 or less	27
1 to 2	14
3 to 4	10
4 to 5	11
5 to 6	4
6 to 7	4
7 to 8	5
8 or more	19

Source: Survey conducted by the authors, Spring, 1982.

Ethnic Background. The ethnic background of the respondents was predominantly White (98.3 percent). Hispanic, Native American, Oriental and other minority groups together accounted for the remaining 1.7 percent. There were no Black respondents in the sample. These figures indicate a low patronage of co-ops by minorities, especially when compared to the ethnic make-up of both the Phoenix and Tucson areas (see Table 5). Similar low representation of minorities was reported by Razzouk and Gourley[2,3] among swap meet shoppers in the Phoenix metropolitan area.

TABLE 5
ETHNIC BACKGROUND OF CO-OP SHOPPERS
(Compared to Phoenix and Tucson Demographic Data)

Race	*Sample Percent*	*Phoenix Percent*	*Tucson Percent*
White	98	82	85
Mexican-American	1	11	17
Black	0	3	3
Other	1	4	4

*Tucson total is more than 100 percent due to households with multiple ethnic origins.

Source: Survey conducted by the authors, Spring, 1982; *Inside Phoenix*, 1982, p. 15; *Tucson Trends*, 1982, p. 15.

Level of Education. Fifty-two percent of the respondents had completed at least four years of college, and an additional 37.1 percent had attended some college. These figures for the food co-op shoppers indicate that they are better educated than the general populations of Phoenix and Tucson (see Table 6); and that food co-ops have a much greater appeal to the better-educated shopper.

TABLE 6
LEVEL OF EDUCATION OF CO-OP SHOPPERS
(Compared to Phoenix and Tucson Demographic Data)

Grade Completed	*Sample Percent*	*Phoenix Percent*	*Tucson Percent*
1-3 yrs. or less of high school	2	16	18
High school graduate	8	36	33
1-3 yrs. of college	37	26	25
College graduate	38	13	14
Graduate studies	16	9	10

Source: Survey conducted by the authors, Spring, 1982; *Inside Phoenix*, 1982, p. 20; *Tucson Trends*, 1982, p. 17 (data derived by authors).

Family Income. Table 7 shows the respondents' level of family income compared to the corresponding income figures for the Phoenix and Tucson populations. Nearly 36 percent of the total respondents reported an annual income of $10,000 or less; of this figure, 71 percent earned $7,500 or less (below the Census Bureau's 1982 national poverty figure of $9,863 for a family of four). Further, only 12.8 percent had a household income of more than $30,000. Only the $15,000-to-$19,999 and $20,000-to-$24,999 income segments were close to general income levels in the Phoenix and Tucson areas.

TABLE 7
HOUSEHOLD INCOME DISTRIBUTION OF FOOD CO-OP PATRONS
(Compared to Phoenix Demographic Data)

Income Level	*Sample Percent*	*Phoenix Percent*
Under $10,000	30	17
$10,000 - $14,999	19	14
$15,000 - $19,999	14	14
$20,000 - $24,999	12	15
$25,000 - $34,999	10	18
$35,000 +	10	22

MEDIAN: $21,578

Source: Survey conducted by authors, Spring 1982; *Inside Phoenix* 1982, p. 29.

TABLE 8
HOUSEHOLD INCOME DISTRIBUTION OF FOOD CO-OP PATRONS
(Compared to Tucson Demographic Data)

Income Level	*Sample Percent*	*Tucson Percent*
Under $10,000	30	26
$10,000 - $14,999	19	14
$15,000 - $19,999	14	13
$20,000 - $24,999	12	16
$25,000 - $29,999	7	9
$30,000 - $20,999	7	11
$30,000 - $50,999	5	13

MEDIAN: $21,578

Source: Survey conducted by the authors, Spring, 1982; *Tucson Trends* 1982, p. 86.

Additionally, these findings indicate that one-third of the co-op shoppers have incomes that are 50 percent or more below the median income of either the greater Phoenix or Tucson areas.

Adults in Household. The largest percentage of respondents (52.2 percent) had two adults living in their household. However, this figure is low when compared to both the Tucson and Phoenix populations (see Table 9). An additional 28.6 percent indicated that one adult (the respondent) resided in their household.

Children. Table 10 indicates that 72.2 percent of the respondents reported having no children (family members under 18 years old) living in their household and that nearly 24 percent had only one or two children. In profiling the respondents with children, the largest percentage indicated they had one child in their family and that this child was under four years old.

TABLE 9
NUMBER OF ADULTS LIVING IN CO-OP SHOPPER'S HOUSEHOLD
(Compared to Phoenix and Tucson Demographic Data)

Number of Adults	*Sample Percent*	*Phoenix Percent*	*Tucson Percent*
1	29	14	24
2	52	60	60
3 or more	19	26	16

Source: Survey conducted by the authors, Spring, 1982; *Inside Phoenix*, 1982, p. 32; *Tucson Trends*, 1982, p. 14.

Tables 9 and 10, together with Table 3 on age, reinforce the fact that the co-op shopper is young and very likely to be still single, recently married, or waiting before starting a family.

TABLE 10
NUMBER OF CHILDREN IN CO-OP SHOPPER'S HOUSEHOLD
(Compared to Phoenix and Tucson Demographic Data)

Number of Children	*Sample Percent*	*Phoenix Percent*	*Tucson Percent*
None	72	60	60
1 to 2	24	29	30
3 or more	4	11	10

Source: Survey conducted by the authors, Spring, 1982; *Inside Phoenix*, 1982, p. 32; *Tucson Trends*, 1982, p. 14.

Leisure Activities. The co-op patrons were diverse in their interests and hobbies. Reading was the most-often cited leisure activity (86.1 percent). Overall, the respondents subscribed to 95 magazines and 18 newspapers. Music (82.2 percent), travel (80.0 percent), and camping (79.8 percent) were the next most popular leisure activities (see Table 11). The top three activities suggest a cultural leaning on the part of the co-op shopper.

TABLE 11
LEISURE ACTIVITIES ENJOYED BY CO-OP PATRONS

Activity	*Sample Percent**
Reading	86
Music	82
Travel	80
Camping	80
Concerts	63
Gardening	53
Crafts	52
Lectures	42
Home entertaining	42
Television	40
Politics	25
Spectator sports	17

*Percentages do not add to 100 percent due to multiple responses.

Source: Survey conducted by the authors, Spring, 1982.

Vegetarianism. Finally, 43.3 percent of the respondents indicated they were vegetarians, and an additional 32.4 percent said they were moving in the direction of vegetarianism. This is one indication that co-op shoppers are more health-oriented than grocery shoppers in general, given that only slightly more than 1 percent of the general U.S. population claim to be vegetarians.[13]

Buyer Motivation and Behavior

Motivation. Tables 12 and 13 identify shoppers' reasons for patronizing the co-op or conventional retail grocery outlet where they most often shop. A wide variety of reasons was ascertained, and both groups cited low prices as an important consideration. However, the co-op shoppers gave higher food quality as their chief reason for patronizing the co-op, a criterion not even mentioned by the conventional grocery shopper. More than one-third of the Phoenix and Tucson conventional grocery shoppers gave location as their primary consideration.

TABLE 12
WHY SHOPPERS PATRONIZE THE CO-OP

Reason	*Sample Percent**
Better-quality products	21
Economical/lower prices	17
Alternative to traditional outlet	10
Selection	9
Fruits/Vegetables	7
Bulk purchases	7
Non-profit nature	7
Membership benefits	16
Atmosphere	6
Health aids	4
Speed of service	3
Location	1
Store hours	1
Parking	—

*Percentages do not add to 100 percent due to multiple responses.

Source: Survey conducted by the authors, Spring, 1982.

TABLE 13
WHY SHOPPERS PATRONIZE
CONVENTIONAL GROCERY STORES

Reason	*Phoenix Percent**	*Tucson Percent**
Location	60	48
Economical/lower prices	47	44
Selection	17	12
Fruits/Vegetables	13	7
Speed of service	10	5
Store hours	2	1
Parking		1
Meats	17	7
Stamps	4	3
Special brands/Products	5	—
Coupon redemption		1
Other		11

*Percentages do not add to 100 percent due to multiple responses.

Source: Inside Phoenix, 1982, p. 83; *Tucson Trends,* 1982, p. 48.

Awareness Factors. Another survey finding was that the majority (57.5 percent) of the respondents learned of their co-op's existence from friends. An additional 23.4 percent discovered their co-op by passing by it. It therefore appears that favorable word-of-mouth communications and store visibility are awareness factors for the co-op shopper as well as important marketing factors for the co-op owner.

Length of Membership. Almost 90 percent of the respondents were active members of their co-op, although nearly 45 percent had been members for one year or less. An additional 27.3 percent had been co-op members between one and three years (see Table 14).

TABLE 14
LENGTH OF CO-OP MEMBERSHIP

Membership Length	*Sample Percent*
Less than 6 months	27
6 months - 1 year	18
1 year - 3 years	27
3 years - 6 years	17
6 years - 9 years	8
10 + years	4

Source: Survey conducted by the authors, Spring, 1982.

These figures could indicate that co-op patronage is either a newly rediscovered and, therefore, growing movement, or that members tend to lose interest in and outgrow their co-op after a relatively short period of time. However, since the Tempe and Tucson co-ops are very near the Arizona State University and University of Arizona campuses respectively, the high proportion of respondents who have been members three years or less could be a function of the high proportion of student members.

Further, 65.3 percent of the respondents said their present co-op experience was their only co-op experience, although an additional 20.3 percent previously had been a member of one other co-op. Another 14.4 percent had been a member of three or more co-ops. This last finding, along with the figures for length of membership, seem consistent with the current resurgence of interest in the consumer co-op concept.

Frequency of Visits. Thirty-eight percent of the respondents indicated they visit a food co-op two times a week or more, and an additional 33.9 percent reported shopping at the co-op once a week (see Table 15). Because all of the co-ops involved in the study require their members to work a specified number of hours per month to maintain an active membership status, the respondents could have been at the co-op to shop, to work, or both. Whatever the case, these figures indicate that a large majority of co-op patrons (71.9 percent) possess a high degree of loyalty to their co-op and consider it part of their weekly shopping routine.

TABLE 15
FREQUENCY OF PATRONIZING A FOOD CO-OP

Number of Visits	*Percent of Sample*
First visit	1
More than twice per week	20
Twice per week	18
Once per week	34
Twice per month	19
Once per month	6
Less than once per month	2

Source: Survey conducted by the authors, Spring, 1982.

Dollars Spent. For the most part, food cooperatives were not the only source of groceries for respondents. Only 43.6 percent indicated that they spent the majority (61 to 100 percent) of their grocery money at the co-op (see Table 16). This finding suggests that co-ops do not satisfy all of the grocery needs of many of their shoppers.

Forty-six percent of the respondents said that they spent less than $15 per week on food co-op purchases. Location of the co-ops could account for the low amount; not only are two of them close to a college campus, but all three co-ops are in low-income areas of their respective communities. However, the fact that the co-ops draw shoppers from a fairly wide geographic area suggests that location is not the only reason for this low average weekly purchase amount.

TABLE 16
PERCENTAGE OF TOTAL
FOOD BILL SPENT AT CO-OP

Percent of Bill	*Sample Percent*
0-20	17
21-40	20
41-60	20
61-80	19
81-100	25

Source: Survey conducted by the authors, Spring, 1982.

Food Categories Purchased. Grains/beans was the largest food category (80.8 percent) that respondents purchased exclusively at the co-op (see Table 17). Other items purchased regularly were spices (71.5 percent), tea (62.5 percent), vitamins/minerals (57.4 percent), and cheese (55.6 percent). Coffee was not only the least-purchased item (9.8 percent), it was also the product respondents most frequently named as one they do not purchase at all (54.2 percent). Fruits and vegetables (55.2 percent), canned/packaged goods (41.9 percent), soaps/cosmetics (36.5 percent), other dairy products (34.7 percent), and baked goods/bread (33.4 percent) were other categories purchased by at least one-third of the patrons at both the co-op and regular grocery stores.

TABLE 17
WHERE FOOD ITEMS ARE
PURCHASED BY CO-OP SHOPPERS

Item	*Co-op*	*Regular Grocery*	*Both*	*Do Not Purchase*
Grains/Beans	81%	1%	14%	4%
Spices	72	0	17	11
Tea	64	3	15	17
Vitamins/Minerals	57	8	15	20
Cheese	56	10	27	8
Baked goods/Bread	40	[illegible]	33	[illegible]
Fruits/Vegetables	37	6	55	2
Soaps/Cosmetics	37	24	37	4
Other dairy	30	25	35	10
Canned/Packaged goods	16	25	42	16
Coffee	10	33	3	54

Source: Survey conducted by the authors, Spring, 1982.

SUMMARY AND CONCLUSIONS

This survey of food cooperative shoppers in the Phoenix and Tucson areas revealed that they tend to be female, white, and between 25 and 29 years old. They are inclined to be vegetarian in their eating patterns, more so than the general public. They are better-educated than the average shopper, having some formal college education, but their income level is below the national poverty figure of $9,862 per year for a family of four. Most co-op shoppers are part of a two-member adult household and have no children.

The fact that most members/patrons have been involved with a co-op for less than three years is consistent with the resurgence of co-ops in recent years. Their shoppers feel the products are of better quality than those found at traditional grocery stores. Most often, patrons learned of the co-op through friends or by word-of-mouth.

The majority of food cooperative shoppers visit a co-op two or more times a week; however, in most cases, it is not their only source of food and grocery items. Shoppers normally spend $15 or less per week on their co-op purchases, and the most-often purchased items include grains and beans.

The relative absence of blacks and other minorities from the sample raises questions on the viability of food co-ops as an alternative form of retailing that caters to the needs of the poor and disadvantaged consumer. An average income of $7,500 per year, as reported by the participants, may not in itself provide a defense for co-ops on this issue since a larger number of respondents were full-time students.

Overall, the results of the study confirm the status of food co-ops as a "life-style" form of retailing, which is patronized by a group of consumers who share common health concerns and social ideologies. Food co-ops may well be a response to the increased sophistication of technology in conventional retailing. Naisbitt contends that "the more technology we introduce into society, the more people will want to be with other people."[14] This phenomenon was evident in the study as many respondents commented on the benefits of working with others in the day-to-day operations of their respective food co-ops. To many of the respondents, the need to control an institution in their own lives superseded the need for cheap food.

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[1] David Gourley and Ellen Ronga, "Secondhand Thrift Stores: The Resurgence of an Old Form of Retailing," *Arizona Business* (First Quarter 1983): 16-22.

[2] Nabil Razzouk and David Gourley, "Swap Meets: A Profile of Shoppers," *Arizona Business* (February/March 1982): 8-12.

[3] Nabil Razzouk and David Gourley, "Swap Meets for Fun and Profit: The Retailing Innovation of the 1980s," *Developments in Marketing Science*, Venkata Krishna Bellur, et al. (eds.), Academy of Marketing Science, Vol. IV (1981): [illegible].

[4] Philip Kotler, "Neglected Areas of Marketing Scholarship," an address before the American Marketing Educators Conference, Chicago, August, 1982.

[5] Thomas Lachas, "Cooperatives: The Consumer's Key to Interdependence," *The Chalkboard*, Vol. 4, No. 4 (April 1981): 4.

[6] Co-op Handbook Collective, *The Food Co-op Handbook* (Boston: Houghton Mifflin Company, 1975), [illegible].

[7] Leonard Kai Hamm, [illegible] (New York: [illegible] Press, [illegible]), [illegible].

[8] Helen Wanamaker, [illegible] (New York: [illegible], 1978).

[9] Ibid.

[10] "Food Co-ops: Good Food at Good Prices," [illegible] (September/October 1977): [illegible].

[11] Ibid.

[12] In a food co-op, members [illegible] number of hours per week.

[13] J. [illegible], [illegible] (June 1977).

[14] John Naisbitt, *Megatrends: Ten New Directions Transforming Our Lives* (New York: Warner Books, Inc., 1982).

Arizona Construction Activity First Quarter, 1984

JAY Q. BUTLER

Arizona construction activity continued to improve through the first quarter of 1984. As shown in Table 1, the key sectors led the industry to a total of 29,539 permits, valued at $1.3 billion. In comparison to a year ago, the quarterly activity represents a 23 percent increase in issued permits (23,903 permits to 29,539 permits) and a 94 percent increase in value ($679 million to $1.3 billion). The first quarter activity continued an upward trend from the fourth quarter, with the 29,539 permits being an 18 percent increase from the fourth quarter's 25,100 permits, while the dollar value of $1.3 billion is a 46 percent improvement from the fourth quarter's $1.0 billion.

The quarterly building permit and new housing starts tables at the end of this report show that improved construction activity was evident throughout Arizona. Since the fourth quarter of 1983, Maricopa County reported an 18 percent increase in issued permits (14,910 permits to 17,632 permits), while dollar value expanded 23 percent ($776 million to $955 million). Pima County recorded a 25 percent improvement in issued permits (4,034 permits to 5,052 permits), and their value showed a 57 percent movement from $127 million to $199 million. In the rest of Arizona, issued permits rose 11 percent (6,156 permits to 6,855 permits), while dollar value improved 27 percent from $132 million to $168 million.

SECTORAL ACTIVITY

Residential

Maricopa County. Because home construction plays a fundamental role in the economy, construction activity in the single family sector is closely watched. The 5,937 permits recorded for the first quarter represents a 30 percent improvement over the 4,551 permits of the fourth quarter and a 27 percent increase from the 4,670 permits of a year ago. Several cities reported strong increases from the fourth quarter: Gilbert (89 permits to 116 permits), Glendale (274 permits to 394 permits), and Mesa (434 permits to 631 permits).

Construction activity and sales activity (see tables at end of this report) have been stimulated by stable interest rates and prices that allow consumers to economically fulfill their housing needs. Innovative financing arrangements by home builders are especially beneficial to entry-level and first-time buyers. Mortgage interest rates, however, have again begun to increase, causing concern to mount about the ability of this sector to sustain the level of activity achieved in recent quarters.

Several studies have shown that homeowners are staying longer in the same house and are increasingly interested in remodeling their current residence. This tendency is also evident in Maricopa County, where 2,196 remodeling permits (alterations and additions), valued at $18 million, were issued during the first quarter. This is a definite improvement over the 2,214 permits ($10 million) of the fourth quarter and the 1,968 permits ($9 million) of a year ago. The importance of the remodeling sector is also evidenced by the growth of the home improvement industry.

Jay Q. Butler is Associate Professor of Real Estate in the College of Business, Arizona State University. He also serves as a faculty research associate in the ASU Bureau of Business and Economic Research and is Director of the Arizona Real Estate Institute.

Rest of Arizona. The single family sector also expanded in Pima County, moving from 924 permits ($49 million) in the fourth quarter to 1,224 permits ($67 million). Much of the single family activity occurred in the unincorporated areas of the county, with 915 permits issued, in contrast to 291 permits in Tucson. Remodeling activity was reflected in 918 permits ($5 million), in comparison to 732 permits ($4 million) for the fourth quarter.

Single family construction activity in the nonmetropolitan counties accelerated from 1,336 permits ($56 million) in the last quarter of 1983 to 1,867 permits ($75 million) in the first quarter of 1984. Primary areas of activity were Sierra Vista (95 permits), Flagstaff (96 permits), Lake Havasu City (156 permits) and Prescott (87 permits). Mobile homes provide a basic source of housing in the nonmetropolitan counties, with 1,402 permits issued, in comparison to 513 permits for Maricopa County. Mohave County led the sector, with 320 permits, followed by Yuma (270 permits) and Pinal (254 permits) counties.

Commercial

Maricopa County. The apartment sector continued to be the dominant sector of activity, with 613 permits valued at $254 million. This level of activity, which followed a very strong fourth quarter (573 permits at $165 million), is comparable to annual levels of activity achieved during the 1970s. Even with consecutive quarters of record permit activity, the metropolitan vacancy rate was a very typical 6 percent. However, most of the apartment units for which permits were issued during the last few quarters have not been completed. Hence, concern exists about the strength and depth of the market and its ability to support the high level of construction activity. On the positive side, the local economy is strong, which allows for increased in-migration and new household formation (marriages and young adults going out on their own).

The three-to-four family sector continued to decline from 229 permits in the fourth quarter to 189 permits in

TABLE 1
KEY SECTOR CONSTRUCTION ACTIVITY
(First Quarter 1984, Fourth Quarter 1983, and First Quarter 1983)

	SINGLE FAMILY		APARTMENTS[a]		COMMERCIAL					
					OFFICE BUILDINGS[b]		RETAIL STORES[c]		INDUSTRIAL	
	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value
MARICOPA COUNTY										
First Quarter, 1984	5,937	376,709,887	613	254,155,458	70	72,215,918	222	38,009,677	167	35,259,999
Fourth Quarter, 1983	4,551	287,850,510	573	164,844,975	35	82,063,716	207	60,425,435	134	29,330,796
First Quarter, 1983	4,670	188,480,261	264	87,484,875	50	27,067,797	152	15,386,004	88	15,215,540
PIMA COUNTY										
First Quarter, 1984	1,224	67,456,367	59	54,556,780	22	16,315,800	14	2,091,068	10	2,439,100
Fourth Quarter, 1983	924	48,714,236	20	22,927,300	15	8,361,715	18	7,981,788	5	2,173,600
First Quarter, 1983	1,136	60,242,377	22	55,644,014	18	4,675,057	18	11,346,211	1	220,000
REST OF ARIZONA										
First Quarter, 1984	1,867	74,806,281	24	6,455,083	19	1,864,169	132	22,158,494	24	1,946,662
Fourth Quarter, 1983	1,336	56,205,474	8	2,903,261	51	6,266,384	55	5,151,964	19	3,058,870
First Quarter, 1983	1,040	43,720,582	10	6,180,097	26	2,051,495	58	6,005,120	22	2,037,434
ARIZONA TOTAL										
First Quarter, 1984	9,028	518,972,535	696	315,167,930	111	90,395,887	368	62,259,239	201	39,645,761
Fourth Quarter, 1983	6,811	392,770,220	601	190,675,645	101	96,691,815	280	73,559,187	158	34,563,266
First Quarter, 1983	6,846	292,458,220	296	147,309,884	94	33,794,349	228	32,737,335	111	17,472,974

[a] Five or more housing units.
[b] Office, bank, medical and professional buildings.
[c] Shopping centers and other mercantile buildings.

Source: Bureau of Business and Economic Research, College of Business, Arizona State University.

the first quarter, 1984. As in the past, most of the activity occurred in Phoenix (92 permits) and Mesa (32 permits). However, additional activity was evident in Chandler (14 permits), Scottsdale (16 permits), and Tempe (12 permits).

The office building sector continued to be strong, with 70 permits ($72 million), following the fourth quarter's 93 permits ($82 million). Office building activity was prevalent in Phoenix (44 permits at $57 million), Scottsdale (9 permits at $6 million), Mesa (7 permits at $6 million), and Chandler (2 permits at $2 million). A fundamental difference from earlier markets is that the office building projects are larger; hence, more square footage will enter the market at some point in the future. For example, permits were issued in Phoenix for office buildings with 116,750 square feet ($4-million permit), 566,139 square feet ($17-million permit), 271,608 square feet ($10-million permit), 240,828 square feet ($8-million permit), and 107,605 square feet ($4-million permit). The market's ability to absorb this and additional office space will provide a fundamental test of the strength of the metropolitan economy.

The retail sector recorded an increase in the number of permits over the fourth quarter (207 permits to 222 permits for the first quarter, 1984); dollar value, however, decreased sharply from $60 million to $38 million. This level of activity, still well above levels achieved in previous quarters, is a response to improving retail sales. Areas of activity are Chandler (3 permits at $2 million), Glendale (42 permits at $4 million), Mesa (12 permits at $6 million), Phoenix (37 permits at $14 million), and Tempe (7 permits at $3 million).

Rest of Arizona. As in Maricopa County, apartment development was very strong in Pima County, with 59 permits issued ($55 million). Tucson issued permits for several major projects, including a 410-unit complex ($9 million), 144-unit complex ($2.5 million), and a 232-unit complex ($4.5 million). Activity in the office building sector increased over the fourth quarter from 15 permits ($8 million) to 22 permits ($16 million). Most of the activity was accounted for by one nine-store project with a permit value of $11 million.

The expanding apartment sector was also evident in the non-metropolitan counties, with 24 permit issued ($6 million). Areas of apartment development activity included Coconino County (1 permit for 72 units), Mohave Valley North (11 permits for 45 units), Lake Havasu City (4 permits for 95 units), Coolidge (1 permit for 12 units), and Prescott (2 permits for 32 units). Since the fourth quarter, office building activity declined from 53 permits at $6 million to 19 permits at $2 million. Primary areas of activity included Cochise County (4 permits at $800,000) and Yavapai County (9 permits at $700,000). Retail activity was especially strong, moving from 55 permits ($5 million) in the fourth quarter to 132 permits ($22 million) in the first quarter, 1984. Location of retail development activity included Eagar (1 permit for $300,000), Bisbee (2 permits at $1.7 million), Sierra Vista (10 permits at $4 million), Willcox (1 permit at $2 million), Lake Havasu City (11 permits at $2 million), Mohave Valley North (29 permits at $6 million), Mohave Valley South (12 permits at $1.2 million) and Prescott (6 permits at $900,000).

Industrial

The industrial sector continued to improve, with 167 permits issued ($35 million), in contrast to only 88 permits ($15 million) that were issued a year ago. Industrial development activity occurred in Chandler (3 permits at $3.8 million), Mesa (5 permits at $3.4 million), Phoenix (57 permits at $10 million), Scottsdale (8 permits at $5 million), and Tempe (92 permits at $13 million). Much of the reported activity was in the area of remodeling. For example, Tempe issued 33 permits ($8.4 million) for new structures and 59 permits ($4 million) for alterations and additions to present structures.

Pima County reported 10 permits ($2.4 million), with three permits ($1 million) in Tucson and 5 permits ($1.4 million) in the unincorporated areas. For the rest of Arizona, industrial activity was slow, with 24 permits issued, worth $2 million. Several areas of industrial activity included Cochise County (1 permit at $225,000), Payson (8 permits at $382,680), Safford (2 permits at $271,989), and Pinal County (1 permit at $700,000).

LOOKING AHEAD

By continuing the trend of improved construction activity that started in late 1982, the first quarter demonstrated the underlying strength of the Arizona real estate market. The fundamental question is, "Can the trend be sustained?"

The primary reason for the question concerns the impact that the federal deficit will have on the credit supply and, in turn, on the real estate market. After remaining fairly stable through most of 1983, interest rates began to increase during the first quarter, with the prime rate going to 11.5 percent, the VA mortgage rate going to 13 percent, and conventional mortgage rates moving up to approximately 14 percent. Rising interest rates will affect not only the economics of a real estate decision but also the psychology. The impact of rising rates will be felt differently by each of the construction sectors.

Consumer confidence is at the highest point recorded in the 1980s because consumers have regained confidence about their personal economic futures and appear ready to make major purchases. In the housing market, rising rates will reduce the number of people who can afford to make a home purchase. Homebuilders, who have been using innovative financing programs such as buy-downs and mortgage bond programs to stimulate the market, will have to continue these aggressive programs if they wish to maintain their market share.

Due to the increased use of adjustable rate mortgages (ARMs), concern is mounting about "payment shock" for borrowers and potential risk for lenders. Basically, as the underlying interest rate index moves up, the monthly payment of the borrower also rises. Hence, the risk of default increases, especially if there is no limit or cap on the increase. Some ARMs place caps on the amount of the monthly payment. However, if the interest paid does not satisfy the interest due, the excess is added to the principal; this is known as "negative amortization." Because ARMs are relatively new and of many different types, the full impact they will have on the housing market is not yet known. It is, however, a situation that should be carefully followed.

Although rising interest rates will also affect non-residential projects, the increasing popularity of syndications (frequently used in financing apartment projects) and joint ventures will allow for some relief. Further, the growth potential of many areas in Arizona provides incentive to carry out projects. Hence, activity in the office building and industrial sectors is expected to remain strong through most of the year, especially in Maricopa and Pima counties. In the non-metropolitan counties, the growth potential is not broad-based, and each area will have to develop an economic base that will stimulate new construction and economic growth.

The economy's ongoing change from a manufacturing base to an information services base, coupled with unusual situations such as high inflation and/or interest rates, has made it very difficult to accurately foresee the future. The consensus outlook is that housing activity will slow, with the other sectors maintaining fairly sound levels of activity. Due to Arizona's tremendous growth potential, the long-term outlook is very good for expanding construction activity.

Metropolitan Phoenix Real Estate Sales: Quarterly Report

FIRST QUARTER, 1984*

MEDIAN SALES PRICE

	Single Family			*Townhouse Condominium*			
	New	*Resale*	*Total*	*New*	*Resale*	*Total*	*Grand Total*
First Quarter, 1981	$72,000	$62,500	$63,500	$62,950	$58,000	$58,800	$62,800
Second Quarter, 1981	73,700	65,000	65,600	63,500	61,000	61,000	65,000
Third Quarter, 1981	77,900	66,700	67,500	65,000	61,000	61,000	66,500
Fourth Quarter, 1981	75,100	66,500	67,000	67,000	60,000	61,450	66,000
Annual, 1981	74,800	65,000	65,000	64,400	60,000	60,500	65,000
First Quarter, 1982	75,800	63,200	64,400	67,000	55,000	58,500	63,400
Second Quarter, 1982	65,900	63,500	64,000	47,550	61,000	57,000	62,500
Third Quarter, 1982	64,625	68,225	67,550	45,150	60,000	58,000	65,700
Fourth Quarter, 1982	66,100	65,825	65,900	43,950	60,000	55,000	64,600
Annual, 1982	66,100	65,000	65,500	47,025	59,725	57,000	64,325
First Quarter, 1983	65,950	65,000	65,200	46,400	60,000	55,000	64,150
Second Quarter, 1983	68,425	67,500	67,900	50,950	61,750	58,500	66,225
Third Quarter, 1983	71,650	69,525	70,000	52,450	61,000	58,000	68,500
Fourth Quarter, 1983	74,475	69,550	71,000	57,225	62,500	60,000	69,400
Annual, 1983	70,050	68,000	68,650	51,650	61,450	58,000	67,000
First Quarter, 1984	74,750	69,525	71,225	56,500	62,000	60,000	69,500

NUMBER OF SALES

	Single Family			*Townhouse Condominium*			
	New	*Resale*	*Total*	*New*	*Resale*	*Total*	*Grand Total*
First Quarter, 1981	818	7,821	8,639	204	1,171	1,375	10,014
Second Quarter, 1981	717	10,204	10,921	161	1,579	1,740	12,661
Third Quarter, 1981	529	9,968	10,497	143	1,488	1,631	12,128
Fourth Quarter, 1981	341	7,013	7,354	106	1,020	1,126	8,480
Annual, 1981	2,405	35,006	37,411	614	5,258	5,872	43,283
First Quarter, 1982	429	4,888	5,317	152	987	1,139	6,456
Second Quarter, 1982	610	5,152	5,762	383	866	1,249	7,011
Third Quarter, 1982	1,260	7,136	8,396	373	1,095	1,468	9,864
Fourth Quarter, 1982	1,665	6,699	8,364	479	1,104	1,583	9,947
Annual, 1982	3,964	23,875	27,839	1,387	4,052	5,439	33,278
First Quarter, 1983	1,804	7,052	8,856	547	1,093	1,640	10,496
Second Quarter, 1983	2,457	8,766	11,223	687	1,506	2,193	13,416
Third Quarter, 1983	2,613	9,672	12,285	639	1,368	2,007	14,292
Fourth Quarter, 1983	2,684	8,151	10,835	668	1,091	1,759	12,594
Annual, 1983	9,558	33,641	43,199	2,541	5,058	7,599	50,798
First Quarter, 1984	2,552	8,520	11,072	694	1,216	1,910	12,982

*Note: This entire data series has been revised, with data now available for 1981. The new series represents all recorded real estate transactions in Maricopa County.

Source: Bureau of Business and Economic Research, College of Business, Arizona State University, from data supplied by Marketron Services, Inc., Phoenix

Arizona Building Permits: Quarterly Report

FIRST QUARTER, 1984

	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
	Number of Permits	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
APACHE COUNTY	32	788,100	2	300,000	0	0	4	23,955	38	1,112,055
Eagar	14	522,000	1	300,000	0	0	0	0	15	822,000
St. Johns	6	N/C	1	N/C	0	0	0	0	7	N/C
Springerville	3	N/C	0	0	0	0	1	N/C	4	N/C
Unincorporated	9	266,100	0	0	0	0	3	23,955	12	290,055
COCHISE COUNTY	382	8,670,552	31	9,418,454	2	239,960	314	2,059,894	729	20,388,860
Benson	17	180,300	1	19,000	0	0	8	124,883	26	324,183
Bisbee	15	54,500	4	1,928,000	0	0	2	716,046	21	2,698,546
Douglas	34	392,735	0	0	0	0	47	107,183	81	499,918
Huachuca City	29	17,644	0	0	1	14,960	0	0	30	32,604
Sierra Vista	136	4,054,720	10	3,806,380	0	0	199	349,905	345	8,211,005
Tombstone	8	23,650	1	15,000	0	0	9	6,250	18	44,900
Unincorporated	130	3,922,003	15	1,329,100	1	225,000	41	746,927	187	6,223,030
Willcox	13	25,000	2	2,320,974	0	0	6	8,700	21	2,354,674
COCONINO COUNTY	346	12,818,350	17	1,475,871	0	0	131	822,013	494	15,116,234
Flagstaff	142	8,065,638	10	380,000	0	0	91	552,801	243	8,998,439
Fredonia	3	N/C	0	0	0	0	0	0	3	N/C
Page	47	536,012	2	180,775	0	0	8	135,472	57	852,259
Unincorporated	146	4,120,785	5	915,096	0	0	17	126,370	168	5,162,251
Williams	8	95,915	0	0	0	0	15	7,370	23	103,285
GILA COUNTY	206	2,758,007	4	596,729	8	382,680	44	2,258,051	262	5,995,467
Globe	8	31,400	0	0	0	0	12	216,050	20	247,450
Hayden	0	0	0	0	0	0	6	9,300	6	9,300
Miami	2	800	0	0	0	0	1	2,000	3	2,800
Payson	92	596,810	4	596,729	8	382,680	13	186,578	117	1,762,797
Unincorporated	104	2,128,997	0	0	0	0	12	1,844,123	116	3,973,120
GRAHAM COUNTY	110	1,353,963	9	30,205	2	271,989	15	32,840	136	1,688,997
Pima	12	51,300	0	0	0	0	4	3,300	16	54,600
Safford	18	401,561	7	26,005	2	271,989	7	19,640	34	719,195
Thatcher	12	273,500	0	0	0	0	3	8,800	15	282,300
Unincorporated	68	627,602	2	4,200	0	0	1	1,100	71	632,904
GREENLEE COUNTY	0	0	0	0	0	0	1	3,500	1	3,500
Clifton	0	0	0	0	0	0	0	0	0	0
Duncan	0	0	0	0	0	0	0	0	0	0
Unincorporated	0	0	0	0	0	0	1	3,500	1	3,500
LA PAZ COUNTY	81	1,177,167	3	344,540	0	0	31	370,387	115	1,892,094
Parker	9	66,424	0	0	0	0	3	5,845	12	72,269
Unincorporated	72	1,110,743	3	344,540	0	0	28	364,542	103	1,819,825
MARICOPA COUNTY	9,085	404,032,340	1,205	404,981,903	167	35,259,999	7,175	111,017,256	17,632	955,291,498
Avondale	63	1,197,910	7	435,840	0	0	26	144,578	96	1,778,328
Buckeye	2	25,000	1	40,000	0	0	0	0	3	65,000
Chandler	755	39,404,259	37	11,539,542	3	3,810,000	966	9,345,764	1,761	64,099,565
El Mirage	15	133,300	0	0	0	0	5	9,900	20	143,200
Gila Bend	1	30,000	3	22,600	0	0	6	48,300	10	100,900
Gilbert	122	6,273,704	3	1,045,004	1	80,960	40	147,534	166	7,547,202
Glendale	476	25,541,836	150	30,923,051	1	295,100	467	3,571,028	1,094	60,331,015
Goodyear	8	175,729	1	600,000	0	0	32	236,076	41	1,011,805
Guadalupe	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Mesa	825	50,218,116	92	88,427,185	5	3,376,960	718	9,474,049	1,640	151,496,310
Paradise Valley	71	5,785,885	1	127,000	0	0	106	772,025	178	6,684,910
Peoria	527	13,110,737	8	5,885,462	0	0	500	1,937,560	1,035	20,933,759
Phoenix	2,922	125,283,530	490	170,546,675	57	9,899,172	1,950	61,716,935	5,419	367,446,312
Scottsdale	518	55,634,269	107	47,146,042	8	5,444,607	609	18,215,170	1,242	126,440,088
Surprise	15	189,062	2	215,000	0	0	19	134,134	36	538,196
Tempe	513	25,155,040	154	32,862,000	92	12,353,200	207	2,791,300	966	73,161,540
Tolleson	8	359,060	0	0	0	0	2	386,476	10	745,536
Unincorporated	2,234	54,981,983	143	14,338,502	0	0	1,515	1,995,167	3,892	71,315,652
Wickenburg	6	171,420	6	828,000	0	0	5	76,500	17	1,075,920
Youngtown	4	361,500	0	0	0	0	2	14,760	6	376,260

Arizona Building Permits: Quarterly Report (continued)

FIRST QUARTER, 1984

	*RESIDENTIAL**		*COMMERCIAL*		*INDUSTRIAL*		*OTHER*		*TOTAL*	
	Number of Permits	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
MOHAVE COUNTY	1,515	27,999,311	167	18,730,704	1	100,800	559	4,603,739	2,242	51,434,554
Kingman City	45	798,868	12	962,396	0	0	15	42,896	72	1,804,160
Kingman Area	126	1,777,845	18	499,816	0	0	62	94,803	206	2,372,464
Lake Havasu City	203	6,104,743	20	4,619,613	0	0	31	264,199	254	10,988,555
Lake Havasu Area	16	271,770	7	615,621	0	0	19	49,124	42	936,515
Mohave Valley N.	394	8,850,052	71	10,156,630	1	100,800	202	3,621,717	668	22,729,199
Mohave Valley S.	654	8,780,532	33	1,859,372	0	0	182	424,361	869	11,064,265
Dolan Springs	24	452,387	1	1,400	0	0	15	23,898	40	477,685
Sacramento Valley	27	366,134	3	5,328	0	0	18	30,754	48	402,216
Mohave General	26	596,980	2	10,528	0	0	15	51,987	43	659,495
NAVAJO COUNTY	168	3,616,332	1	157,500	0	0	26	47,994	195	3,821,826
Holbrook	1	500	0	0	0	0	3	3,800	4	4,300
Show Low	25	440,672	1	157,500	0	0	14	9,500	40	607,672
Snowflake	4	N/C	0	0	0	0	1	N/C	5	N/C
Taylor	4	85,000	0	0	0	0	1	N/C	5	85,000
Unincorporated	124	2,949,020	0	0	0	0	6	19,694	130	2,968,714
Winslow	10	141,140	0	0	0	0	1	15,000	11	156,140
PIMA COUNTY	3,208	75,164,790	159	97,547,388	10	2,439,100	1,675	24,055,847	5,052	199,207,125
Marana	11	N/C	0	0	0	0	2	N/C	13	N/C
Oro Valley	15	937,500	1	30,000	0	0	7	34,810	23	1,002,310
South Tucson	7	77,713	1	156,527	2	272,000	4	167,458	14	673,698
Tucson	1,232	17,358,877	81	52,776,661	3	799,700	1,053	16,791,979	2,369	87,727,217
Unincorporated	1,943	56,790,700	76	44,584,200	5	1,367,400	609	7,061,600	2,633	109,803,900
PINAL COUNTY	453	6,512,474	29	3,269,541	2	712,000	301	1,485,677	785	11,979,692
Apache Junction	185	2,696,147	13	647,353	1	12,000	207	324,993	406	3,680,493
Casa Grande	20	1,168,311	4	174,638	0	0	13	211,109	37	1,554,058
Coolidge	14	12,500	1	280,000	0	0	7	5,500	22	298,000
Eloy	4	107,990	0	0	0	0	3	21,500	7	129,490
Florence	0	0	0	0	0	0	0	0	0	0
Kearny	4	10,659	0	0	0	0	8	10,275	12	20,934
Mammoth	1	N/C	0	0	0	0	1	43,000	2	43,000
Superior	5	4,050	0	0	0	0	1	N/C	6	4,050
Unincorporated	220	2,512,817	11	2,167,550	1	700,000	61	869,300	293	6,249,667
SANTA CRUZ COUNTY	29	1,066,650	0	0	0	0	11	148,072	40	1,214,722
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	5	22,050	0	0	0	0	3	20,000	8	42,050
Unincorporated	24	1,044,600	0	0	0	0	8	128,072	32	1,172,672
YAVAPAI COUNTY	805	24,719,140	47	5,118,486	7	166,744	367	3,902,358	1,226	33,906,728
Chino Valley	46	739,079	3	83,000	0	0	16	191,085	65	1,013,164
Clarkdale	14	465,377	1	11,424	0	0	9	35,674	24	512,475
Cottonwood	31	601,392	6	314,438	3	50,064	14	1,052,493	54	2,018,387
Jerome	3	40,400	0	0	0	0	0	0	3	40,400
Prescott	144	4,171,596	12	2,662,124	0	0	186	1,389,738	342	8,223,458
Prescott Valley	83	3,279,616	4	227,600	1	32,400	28	219,756	116	3,759,372
Unincorporated	484	15,421,680	21	1,819,900	3	84,280	114	1,013,612	622	18,339,472
YUMA COUNTY	443	9,881,677	8	1,844,538	2	72,489	139	7,892,782	592	19,691,486
Somerton	12	526,325	0	0	0	0	11	44,900	23	571,225
Unincorporated	297	5,798,481	4	100,200	2	72,489	66	257,878	369	6,229,048
Wellton	0	0	0	0	0	0	0	0	0	0
Yuma	134	3,556,871	4	1,744,338	0	0	62	7,590,004	200	12,891,213
Total, Maricopa Co., 1st Qtr., 1984	9,085	404,032,340	1,205	404,981,903	167	35,259,999	7,175	111,017,256	17,632	955,291,498
Total, Maricopa Co., 1st Qtr., 1983	7,392	208,208,959	630	141,371,574	88	15,215,540	6,571	56,954,785	14,681	421,750,858
Percent Change	22	94	91	186	89	131	9	94	20	126
Total, Arizona, 1st Qtr., 1984	16,863	580,558,853	1,682	543,815,859	201	39,645,761	10,793	158,724,365	29,539	1,322,744,838
Total, Arizona, 1st Qtr., 1983	13,035	335,116,352	887	233,831,761	111	17,472,974	9,870	93,043,133	23,903	679,464,220
Percent Change	29	73	89	132	81	126	9	70	23	94

*Includes Mobile Homes
N/R: No Report
N/C: Some communities do not collect dollar valuations.

Arizona New Housing Starts: Quarterly Report

FIRST QUARTER, 1984

BUILDING PERMITS ISSUED

	One Family	Mobile Homes	Duplex	3-4 Family	5 or More	Total Housing Units
APACHE COUNTY	22	6	0	0	0	28
Eagar	11	1	0	0	0	12
St. Johns	2	4	0	0	0	6
Springerville	3	0	0	0	0	3
Unincorporated	6	1	0	0	0	7
COCHISE COUNTY	155	105	0	1	1	270
Benson	0	12	0	0	0	12
Bisbee	0	0	0	0	0	0
Douglas	3	0	0	0	0	3
Huachuca City	0	15	0	0	0	15
Sierra Vista	95	15	0	0	0	110
Tombstone	3	2	0	1	0	8
Unincorporated	54	57	0	0	1	118
Willcox	0	4	0	0	0	4
COCONINO COUNTY	188	98	5	1	1	372
Flagstaff	96	21	5	0	0	127
Fredonia	0	3	0	0	0	3
Page	9	27	0	1	0	40
Unincorporated	82	45	0	0	1	199
Williams	1	2	0	0	0	3
GILA COUNTY	67	62	1	3	1	149
Globe	1	0	0	0	0	1
Hayden	0	0	0	0	0	0
Miami	0	0	0	0	0	0
Payson	20	31	1	3	1	71
Unincorporated	46	31	0	0	0	77
GRAHAM COUNTY	13	45	0	0	0	58
Pima	0	4	0	0	0	4
Safford	6	1	0	0	0	7
Thatcher	3	4	0	0	0	7
Unincorporated	4	36	0	0	0	40
GREENLEE COUNTY	0	0	0	0	0	0
Clifton	0	0	0	0	0	0
Duncan	0	0	0	0	0	0
Unincorporated	0	0	0	0	0	0
LA PAZ COUNTY	5	41	0	0	0	46
Parker	0	3	0	0	0	3
Unincorporated	5	38	0	0	0	43
MARICOPA COUNTY	5,937	513	96	189	613	16,757
Avondale	19	31	0	3	1	60
Buckeye	1	1	0	0	0	2
Chandler	649	0	7	14	18	944
El Mirage	1	2	0	0	0	3
Gila Bend	1	0	0	0	0	1
Gilbert	116	0	0	0	2	132
Glendale	394	0	1	0	84	1,485
Goodyear	3	5	0	0	0	8
Guadalupe	N/R	N/R	N/R	N/R	N/R	N/R
Mesa	631	0	36	32	57	2,763
Paradise Valley	26	0	0	0	0	26
Peoria	475	0	3	0	2	779
Phoenix	1,788	93	40	92	307	6,154
Scottsdale	427	0	0	16	66	1,245
Surprise	0	9	0	0	0	9
Tempe	343	0	7	12	77	1,348
Tolleson	5	0	2	0	0	9
Unincorporated	1,051	372	0	14	19	1,746
Wickenburg	5	0	0	6	0	41
Youngtown	2	0	0	0	0	2

N/R: No Report

BUILDING PERMITS ISSUED

	One Family	Mobile Homes	Duplex	3-4 Family	5 or More	Total Housing Units
MOHAVE COUNTY	740	320	0	6	15	1,220
Kingman City	21	2	0	0	0	23
Kingman Area	19	47	0	0	0	66
Lake Havasu City	156	9	0	2	4	269
Lake Havasu Area	3	11	0	0	0	14
Mohave Valley N	124	105	0	4	11	285
Mohave Valley S	393	119	0	0	0	512
Dolan Springs	7	9	0	0	0	16
Sacramento Valley	2	15	0	0	0	17
Mohave General	15	3	0	0	0	18
NAVAJO COUNTY	90	11	0	0	0	101
Holbrook	0	0	0	0	0	0
Show Low	7	9	0	0	0	16
Snowflake	2	0	0	0	0	2
Taylor	2	0	0	0	0	2
Unincorporated	76	0	0	0	0	76
Winslow	3	2	0	0	0	5
PIMA COUNTY	1,224	624	26	28	59	4,720
Marana	1	10	0	0	0	11
Oro Valley	15	0	0	0	0	15
South Tucson	2	0	0	0	0	2
Tucson	291	157	26	28	19	2,028
Unincorporated	915	457	0	0	40	2,664
PINAL COUNTY	106	254	4	7	2	416
Apache Junction	33	132	0	4	0	181
Casa Grande	6	0	2	0	0	10
Coolidge	0	5	0	0	1	17
Eloy	1	0	1	0	0	3
Florence	0	0	0	0	0	0
Kearny	0	0	0	0	0	0
Mammoth	1	0	0	0	0	1
Superior	0	0	0	0	0	0
Unincorporated	65	117	1	3	1	204
SANTA CRUZ COUNTY	19	2	0	0	0	21
Nogales	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	0	2	0	0	0	2
Unincorporated	19	0	0	0	0	19
YAVAPAI COUNTY	381	188	4	7	3	634
Chino Valley	10	23	0	0	0	33
Clarkdale	7	1	0	0	0	8
Cottonwood	8	6	0	3	0	17
Jerome	1	0	0	0	0	1
Prescott	87	14	0	0	2	137
Prescott Valley	34	10	3	0	0	50
Unincorporated	234	134	1	4	1	388
YUMA COUNTY	81	270	0	1	1	364
Somerton	12	0	0	0	0	12
Unincorporated	19	236	0	0	0	255
Wellton	0	0	0	0	0	0
Yuma	50	34	0	1	1	97
Total, Maricopa Co., 1st Qtr., 1984	5,937	513	96	189	613	16,757
Total, Maricopa Co., 1st Qtr., 1983	4,670	459	80	93	264	9,552
Percent Change	27	11	19	103	132	75
Total, Arizona, 1st Qtr., 1984	9,028	2,539	136	243	696	25,156
Total, Arizona, 1st Qtr., 1983	6,846	2,074	102	135	296	16,178
Percent Change	31	22	33	79	135	55

A Survey of Arizona Business Conditions

HAROLD FEARON

MARCH

Economic activity accelerated again in March, with new orders received, production, employment, and purchase commitments registering strong advances. Vendors' backlogs continued to grow, and prices rose, pushed by higher operating rates. The economic expansion, now in its 15th month, will continue to enjoy strong growth over the balance of the year. A very-real danger is that the economy will begin to overheat, as available capacity and resources become overextended, resulting in an unacceptable inflation rate. Actions to curtail the upward price pressures must be carefully applied, in order to prevent a sharp slowdown in economic growth.

Now in its 21st consecutive year of monthly reporting on the health of the Arizona economy, the purchasing business survey is conducted with the cooperation of the purchasing management associations of Arizona and Southern Arizona. Data are gathered through a questionnaire sent at the close of each month to purchasing managers statewide, asking them to indicate the direction of activity—higher, unchanged, or lower—on seven key measures of economic activity in the month just ended. These purchasing managers deal daily with supply, demand, and price factors in the marketplace. Their aggregate readings have accurately charted the course of the current economy during the past two decades and have provided data on turning points several weeks earlier than comparable government data.

Prices

Prices paid for major purchased items continued to escalate in March at approximately the same rate as in February. Forty-six percent of the firms paid higher prices for their purchases in March than in February; only 4 percent saw prices drop; while 50 percent said prices were unchanged. Price pressures are steadily building and will become an obstacle to the momentum of the current economic expansion. The 15-month upswing is reaching the point where, in previous post-war expansions, strong inflationary pressures have begun to emerge. The challenge to the Federal Reserve System is to permit interest rates to rise sufficiently to defuse upward price pressure, without causing the economy to slide back into a recessionary mode. Certainly, the inflation problem will be with the Arizona economy for the balance of the year.

Delivery Time

Delivery time on shipments from vendors extended even further in March, although at a slightly lower rate than in February (the month in which the highest increase of the current economic expansion occurred). Longer delivery lead times were reported by 45 percent of the purchasing managers, while only 1 percent said they received faster deliveries from their vendors. Obviously, suppliers to Arizona firms are facing a major problem in keeping production at a rate high enough to meet demand. This situation is typical in a rapidly expanding economy.

Dr. Fearon is The National Association of Purchasing Management Professor of Management in the College of Business, Arizona State University.

Inventory Levels

Inventory levels of purchased materials increased again, for the 14th consecutive month, although at a somewhat lower rate than in both January and February. Thirty-seven percent of the firms increased their inventory levels, compared to the 18 percent that reduced stocks. An interesting aspect of the current expansion is that Arizona firms have done a superb job of increasing output while keeping inventory investment under tight control. The very high interest rates have provided incentive to control inventory investment, and the introduction of more advanced computer systems has been the vehicle for more cost-effective inventory decisions.

New Orders

New orders received from customers went up again in March, for the 15th month in a row, but at a somewhat lower rate than in both January and February. Forty-nine percent of the firms booked more new business in March than in February, which was three times greater than the 16 percent that saw their order books shrink. The very strong new orders performance has been the force causing the expansion, and this moderation in the increase rate probably is a good sign. The growth rates of the past two quarters cannot be sustained over the balance of the year without resulting in further inflationary problems.

Production

Production of Arizona firms continued to rise, in order to meet the increasing flow of new orders. Higher production was reported by 39 percent of the purchasing managers, and only 17 percent said they cut output. While the March increase was at the lowest rate since last November, it still presents a picture of solid growth.

Employment

Employment grew in March at essentially the same rate as in February. This was the 14th consecutive monthly employment increase. Higher employment was reported by 32 percent of the firms; 10 percent pared payrolls in March. Employment levels have expanded strongly, beginning in February 1983, and the economy now has recovered from the effects of the 1981-82 recession.

Purchases

Purchases of materials and services by Arizona firms continued to expand but at a rate somewhat lower than in the past two months. Fifty-two percent of the firms increased their purchases in March compared to February, while 13 percent cut back commitments. Of course, when both the new order and production increase rates moderate, as they did in March, the purchase commitment increase rate also would be expected to decrease. However, the March increase rate remained very strong.

Summary

In March, the Arizona business expansion followed a predictable course. The business cycle is unfolding in almost the same pattern as it has in prior post-war advances. All indicators show very good strength, which will continue during the balance of the year. The only problem area evident at this point in the expansion is the growing inflation rate, although inflation hasn't yet reached a dangerous level.

Table 1 presents the March purchasing survey, comparing activity in March with the previous month.

TABLE 1
MARCH PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (March compared to February)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	46	50	4
Delivery time from vendors	45	54	1
Purchased materials inventory level	37	45	18
New orders received	49	35	16
Production	39	44	17
Employment	32	58	10
Purchases	52	35	13

Source: Purchasing Management Association of Arizona and Purchasing Management Association of Southern Arizona.

APRIL

The economy continued its strong expansion in April, with new orders and production rising to meet higher backlogs. Employment registered its sharpest increase since the recovery began in January 1983. Prices jumped, reflecting a tightening of resource availability. The expansion, in its 16th month, continued to exhibit good health, although the rate of growth will moderate as the current business cycle moves into its second year. Prices will continue to advance, as operating rates reach the point at which resource shortages appear. Interest rates probably will rise further, taking some of the steam out of the advance. However, further growth will occur, and 1984 will be recorded as consolidating the strong gains of 1983.

Prices

Prices paid for major purchased items continued to accelerate, as the surging demand and higher operating rates placed pressure on available production resources. The April increase rate, up over March, was at the highest level since this economic expansion began in January 1983. Forty-seven percent of the purchasing managers paid higher prices in April than in March; 53 percent said prices were unchanged; and no one reported price decreases. A return to the unacceptably-high inflation rates experienced in the late 1970s is now a definite possibility and will require a delicate balancing act on the part of the Federal Reserve System if it is to be avoided.

Delivery Time

Delivery time on shipments from vendors stretched even further in April, for the 18th consecutive month, and at a rate about the same as in March. Longer delivery times were reported by 45 percent of the firms, which was nine times the 5 percent that enjoyed faster vendor service. Industry backlogs grew, causing vendors great difficulty in keeping up with requested delivery schedules.

Inventory Levels

Inventory levels moved up again, at approximately the same rate as in the previous month. Thirty-seven percent of the firms added to purchased inventory, compared to only 16 percent that cut stocks. While inventory increases during the first four months of 1984 were well above those of the previous year, the inventory stocks of Arizona firms still appeared to be normal for the high operating rates now in effect.

New Orders

New orders received from customers followed an upward course, with an increase rate almost identical to that of March. Forty-five percent of the firms booked more new business in April than they did in March, which was more than three times the 13 percent who saw their order books shrink. However, the April increase rate was the smallest since last November, and there was a noticeable slowing in the growth rate in each of the past two months, as the economy continued to expand but at a somewhat-less-hectic pace.

Production

Production rose again in April, in order to meet the continuing in-flow of new orders. Forty-six percent of the firms increased production; only 8 percent cut output.

Employment

Employment enjoyed its largest one-month increase of the past 15 months — since February, 1983 — when this indicator turned positive at the beginning of the recovery. Forty percent of the firms added employees, which was five times the 8 percent that pared payrolls. Arizona firms evidently are confident about the economic future and are hiking output rates in an attempt to reduce their backlogs and increase service levels.

Purchases

Purchases of materials and services continued to go up, at essentially the same rate as in March. However, the increase rate in both March and April was down somewhat from the first two months of the year. Purchase commitments were increased by 53 percent of the firms; only 10 percent cut them.

Summary

In April, the expansion continued very strong, although the new order indicator signalled a small moderation in the growth rate. The increases in interest rates will cause an even-further softening of growth, but there is no sign that the expansion is about to peak. The balance of the year should see further advances in most of the indicators, and the inflationary problem will become more pronounced.

Table 2 presents the April purchasing survey results.

TABLE 2
APRIL PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (April compared to March)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	47	53	0
Delivery time from vendors	45	50	5
Purchased materials inventory level	37	47	16
New orders received	45	42	13
Production	46	46	8
Employment	40	52	8
Purchases	53	37	10

Source: Purchasing Management Association of Arizona and Purchasing Management Association of Southern Arizona.

Arizona Business Scene

1983 Construction Activity Statewide

TOM R. REX

The number of building permits issued in Arizona in 1983, more than 105,600, nearly reached the 1978 record of 108,700. Their estimated value, $3.6 billion, was well above the previous record of $2.6 billion in 1979. Adjusting these values for inflation, however, reveals that the true dollar-value record occurred in 1978 and that the 1983 value fell slightly short of the record (see Table 1). Even after adjusting for inflation, the 1983 dollar value was 28 percent to 50 percent higher than the values of the recession-racked years 1980 through 1982. The unadjusted dollar value was 52 percent higher, and the number of permits issued was 36 percent higher in 1983 than in 1982.

The residential market, which generally leads construction out of a recession, had a good year in 1983. Total permits rose 34 percent; permits for new single family homes jumped 56 percent; and the inflation-adjusted dollar value climbed 75 percent. However, these levels remained below those of both 1978 and 1979. In contrast, the commercial market, which generally lags slightly in recovering from a recession, had a record year in 1983. The number of permits rose 47 percent from 1982 to a record 4,700, while the inflation-adjusted dollar value grew 55 percent to a level that was 30 percent higher than the record value of 1979. The commercial sector's strength was largely due to record levels of apartment construction. The number of permits for new multifamily housing units was nearly double the 1982 number and was 78 percent higher than the previous record set in 1979.

Industrial construction, which normally lags behind the economic cycle by approximately two years, declined for the third consecutive year in 1983. Inflation-adjusted values were less than one-half the 1979 record, while the number of permits issued was 11 percent below the 1980 and 1981 records. Other types of construction, which includes public buildings, swimming pools, fences, and other miscellaneous structures, reached record levels in 1983, although the inflation-adjusted value remained below that of 1979.

Average Permit Values

The average value of selected types of building permits, by county, is presented in Table 2. Only the structure itself is included in the estimated value; cost of the land is excluded. The 1983 average value of single family houses, excluding mobile homes, ranged from less than $33,000 in Apache and Navajo Counties to more than $63,000 in Santa Cruz County. The mean value in Maricopa County ($51,800) was less than that of several other counties.

Some counties issued no new permits for large apartment complexes in 1983. For those that issued permits, the average values ranged from $206,000 in Yuma County to $1.8 million in the Tucson area. In the other permit categories, additions and alterations are frequently included with new construction, explaining the very small average values in some of the non-metropolitan counties.

Per Capita Values by County

In order to compare 1983 permit levels from county to county in Arizona, the number of permits and estimated values were adjusted for population. Census counts from 1980 were used, excluding the Indian reservation population, since building permit data are not collected on reservation land. By revealing which areas have relatively high levels of construction activity, these per capita values also indicate the areas of rapid growth.

The per capita value of 1983 Arizona building permits is shown in Table 3: The average per capita value was $1,390. Only five counties recorded a higher per capita value than the state average, and only Maricopa County reported a value greater than the state average in each of the four categories: residential, commercial, industrial, and other. Arizona's other metropolitan county, Pima, had relatively low levels of both residential and industrial building permits. In most of the non-metropolitan counties, commercial and industrial construction lagged behind the state average. In Apache County, one building permit for a power generating plant accounted for the relatively high per capita valuation.

Wide differences by county are also apparent in the per capita number of permits for new housing (see Table 4). Led by Yavapai, Mohave, and Santa Cruz counties, approximately one-half of the counties exceeded the state average for new single family home construction. In contrast, Graham and Greenlee counties had almost no new home construction. New mobile homes were especially prevalent in La Paz, Mohave, and Yavapai counties. Only the two metropolitan counties experienced above-average building of multifamily (apartment) units.

Per Capita Value by City

Most of the cities that reported a high per capita value of building permits in 1983 are located in the Phoenix metropolitan area. In the rural counties, unincorporated areas frequently had higher per capita values than incorporated towns.

In Maricopa County, Gilbert recorded the highest per capita value of building permits at $8,639, more than six times higher than the state average. The neighboring city of Chandler had the next highest level, $5,816 per person. Other cities in the Phoenix area with per capita values at least 50 percent greater than the state average included Apache Junction, Mesa, Paradise Valley, Peoria, Scottsdale, and Tempe. In both Tempe and Mesa, per capita commercial values exceeded residential values. Tempe was also very strong in industrial construction.

The only towns outside the Phoenix area with per capita building permit values at least 20 percent more than the Arizona average were Prescott Valley in Yavapai County, with a higher volume of both residential and industrial activity; and Oro Valley in the Tucson area, with a high volume of residential and commercial activity. The unincorporated areas of Coconino, Mohave, Santa Cruz, and Yavapai counties had considerable activity, primarily due to residential building permits.

Most of these same cities and unincorporated areas issued permits for new housing units at levels well above the state average of 29 per 1,000 residents. Several other towns and unincorporated areas were also strong markets for new housing units, which include single family dwellings, mobile homes, and multifamily units: Payson, Avondale, Glendale, Chino Valley, and the unincorporated areas of La Paz, Maricopa, Navajo, and Pima counties.

TABLE 1
ARIZONA BUILDING PERMITS

	Residential			*Commercial*			*Industrial*			*Other*			*Total*		
	#[1]	$[2]	Adj $[3]	#[1]	$[2]	Adj $[3]	#[1]	$[2]	Adj $[3]	#[1]	$[2]	Adj $[3]	#[1]	$[2]	Adj $[3]
1977	56.0	1,096	1,096	2.7	285	285	.39	45	45	29.1	252	252	88.2	1,676	1,676
1978	71.5	1,483	1,347	3.5	542	493	.52	77	70	33.4	288	262	108.7	2,390	2,171
1979	68.6	1,329	1,054	3.7	726	576	.60	178	142	34.4	387	307	107.2	2,621	2,078
1980	50.5	1,058	728	3.6	750	516	.64	186	128	31.6	398	274	86.1	2,392	1,646
1981	46.0	1,048	654	3.7	915	570	.64	152	95	32.2	314	196	82.6	2,427	1,514
1982	45.5	982	582	3.2	811	481	.49	145	86	30.4	431	255	77.4	2,369	1,404
1983	58.2	1,747	1,020	4.7	1,278	746	.57	115	66	42.1	462	270	105.6	3,601	2,102

[1] Number of permits in thousands
[2] Dollar value in millions
[3] Value in millions of 1977 dollars, adjusted for inflation by the Metropolitan Phoenix Consumer Price Index

Source: Bureau of Business and Economic Research, College of Business, Arizona State University

TABLE 2
AVERAGE BUILDING PERMIT VALUE, 1983
(In Thousands of Dollars)

	Single Family Residence	*Apartments 3 units or more*	*Office Buildings*	*Retail Stores*	*Industrial*
ARIZONA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
County					
Apache	32.6	56.8	[illegible]	[illegible]	[illegible]
Cochise	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Coconino	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Graham	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Gila	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Greenlee	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
La Paz	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Maricopa	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mohave	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Navajo	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Pima	[illegible]	1,604.5	[illegible]	[illegible]	[illegible]
Pinal	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Santa Cruz	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Yavapai	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Yuma	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NA Not available

Source: Bureau of Business and Economic Research, College of Business, Arizona State University.

TABLE 3
PER CAPITA VALUE OF BUILDING PERMITS, 1983

	Residential	Commercial	Industrial	Other	Total
ARIZONA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
County data, as a percentage of Arizona					
Apache	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cochise	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Coconino	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Gila	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Graham	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Greenlee	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
La Paz	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Maricopa	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mohave	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Navajo	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Pima	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Pinal	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Santa Cruz	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Yavapai	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Yuma	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Source: Bureau of Business and Economic Research, College of Business, Arizona State University.

TABLE 4
PERMITS FOR NEW HOUSING UNITS: NUMBER PER 1,000 RESIDENTS, 1983

	Single Family	*Mobile Home*	*Multifamily*	*Total*
ARIZONA	12	4	13	29
County				
Apache	15	7	5	27
Cochise	6	6	6	19
Coconino	15	9	2	25
Gila	9	7	1	16
Graham	2	7	0	9
Greenlee	0	0	0	0
La Paz	5	23	0	28
Maricopa	14	1	16	32
Mohave	17	18	5	40
Navajo	14	7	1	22
Pima	9	5	15	28
Pinal	5	9	4	18
Santa Cruz	19	1	2	23
Yavapai	20	13	5	38
Yuma	5	8	1	14

Note: Rows may not add to total due to rounding.

Source: Bureau of Business and Economic Research, College of Business, Arizona State University.

Metropolitan Phoenix Consumer Price Index First Quarter, 1984

TOM R. REX

Prices of goods and services in the Phoenix metropolitan area rose 1.9 percent during the first quarter, 1984, the largest increase since the fourth quarter, 1981, and considerably in excess of the advance recorded in the fourth quarter, 1983 (see Table 1). The index for all items, 177.4 on a 1977 = 100 base, is 5.8 percent higher than it was one year ago.

The Metropolitan Phoenix Consumer Price Index (CPI), on which these inflation figures are based, is prepared by the Bureau of Business and Economic Research, College of Business, Arizona State University. The quarterly CPI results from comprehensive surveys conducted by the Bureau in cooperative cosponsorship with Valley National Bank.

Three items were responsible for nearly three-fourths of the first quarter advance: Health insurance premiums soared 32.4 percent, accounting for more than 40 percent of the overall increase; used car prices rose 7.0 percent; and apartment rents climbed an unexpected 4.2 percent. Although the rate of increase in each of the three major categories of the CPI—housing, transportation, and food and beverages—accelerated from the previous quarter's pace, each posted a smaller first quarter gain than the overall rate of 1.9 percent. However, the medical care category surged 11.4 percent.

Food and Beverages

After two quarters of little change, prices of food and beverages climbed 1.8 percent during the first quarter, led by a 2.2 percent rise in the food purchased at grocery stores category. Smaller gains were posted for food away from home and alcoholic beverages (see Table 2).

A 5.0 percent increase in the prices of cereal and bakery products was the largest since the third quarter, 1977. Prices of fresh vegetables jumped 17.0 percent, largely a seasonal

TABLE 1
PERCENT CHANGES IN METROPOLITAN PHOENIX CONSUMER PRICE INDEX

		Percent Change from Preceding Quarter				
Expenditure Category	*Relative Importance*	*1st 1983*	*2nd 1983*	*3rd 1983*	*4th 1983*	*1st 1984*
ALL ITEMS	100.0	0.2	1.7	1.6	0.5	1.9
Food and Beverages	19.0	2.3	1.5	(0.1)	0.4	1.8
Housing	39.0	(0.5)	1.8	0.9	(0.2)	0.6
Apparel and Upkeep	5.0	0.6	1.8	1.0	1.7	2.5
Transportation	21.8	(1.9)	2.5	3.3	0.5	1.6
Medical Care	6.6	3.0	1.0	4.7	2.0	11.4
Entertainment	4.6	1.7	(2.1)	(0.2)	2.9	1.1
Other Goods and Services	4.1	2.6	2.7	4.7	0.5	0.8

Source: Bureau of Business and Economic Research, College of Business, Arizona State University, in cooperative cosponsorship with Valley National Bank.

phenomenon, pushing the fruits and vegetables category up 2.7 percent. The index for meats, poultry, fish, and eggs rose 1.9 percent, primarily caused by a 13.5 percent climb in poultry prices, the largest in the last four years, and by a 19.2 percent boost in the price of eggs, the largest in the history of the Phoenix CPI. Egg prices were 30.3 percent higher than they were one year ago. An avian flu epidemic in the eastern United States was the major reason for these large poultry and egg price increases. Although the index for other food at home rose 2.1 percent, prices of dairy products were constant during the first quarter and were slightly lower than they were one year ago.

Housing

Housing costs rose a modest 0.6 percent during the first quarter, following a slight decline in the previous quarter. Homeowners' costs advanced only 0.2 percent, an increase comparable to each of the two previous quarters. In contrast, renters' costs jumped 3.6 percent, due to an increase in apartment rents that was more than double that of each quarter since 1979. Because of the large volume of apartment construction that occurred in 1983 and has continued into 1984, this large gain was unanticipated.

The index for fuel and utilities went up only 0.2 percent during the first quarter as a 19.3 percent increase in telephone charges was largely offset by a seasonal decline in electricity rates. The largest decline since 1975 in the cost of household furnishings and operations also helped to moderate the overall rise in prices in the housing category.

Transportation

The increase in transportation costs accelerated to 1.6 percent in the first quarter. This gain was primarily caused by the boost in used car prices, which were 19.0 per-

TABLE 2
METROPOLITAN PHOENIX CONSUMER PRICE INDEX
FIRST QUARTER, 1984
(1977 = 100)

Expenditure Category	*Last Qtr. Index*	*This Qtr. Index*	*Percent Change*	*Year-Ago Change*
ALL ITEMS	174.1	177.4	1.9	5.8
Food and Beverages	160.0	162.9	1.8	3.6
Food	160.6	163.5	1.8	3.5
Food At Home	158.3	161.9	2.2	2.2
Cereal and Bakery Products	161.1	169.1	5.0	4.2
Meats, Poultry, Fish, and Eggs	154.4	157.4	1.9	0.6
Dairy Products	152.9	153.2	0.2	−1.3
Fruits and Vegetables	166.4	170.9	2.7	7.5
Other Food At Home	148.1	151.2	2.1	2.2
Food Away From Home	162.3	163.9	1.0	5.9
Housing	183.8	185.0	0.6	3.2
Shelter	196.0	198.4	1.2	3.5
Renters' Costs**	102.5	106.2	3.6	0.0
Homeowners' Costs**	100.6	100.8	0.2	0.0
Fuel and Other Utilities	159.3	159.6	0.2	6.8
Gas (piped) and Electricity	176.4	171.2	−2.9	4.4
Household Furnishings and Operations	143.9	142.7	−0.9	1.5
Apparel and Upkeep	138.4	141.9	2.5	7.1
Transportation	170.7	173.4	1.6	8.2
Private Transportation	167.6	170.4	1.7	7.6
New and Used Cars	171.1	178.3	4.2	12.4
Motor Fuels	194.5	189.9	−2.4	9.0
Public Transportation	223.5	224.6	0.5	16.5
Medical Care	201.6	224.5	11.4	20.0
Entertainment	161.8	163.6	1.1	1.6
Other Goods and Services	157.8	159.0	0.8	8.9

An ** indicates that the base period is second quarter, 1983.
The year-ago change for categories with a second quarter, 1983, base is unavailable.

Source: Bureau of Business and Economic Research, College of Business, Arizona State University, in cooperative cosponsorship with Valley National Bank.

cent higher than they were one year ago. Vehicle insurance premiums also contributed to the rise with a 7.1 percent increase, the largest in four years. Lower prices for gasoline and for vehicle parts and equipment partially offset these advances. After four successive quarters of decline, prices for parts and equipment were 16.2 percent lower than they were one year ago.

Medical Care

The 11.4 percent first quarter gain in medical care costs greatly exceeded the previous quarterly record of 8.5 percent. The increase was entirely caused by the surge in health insurance premiums, which occurred for both Blue Cross/Blue Shield and commercial health insurance. A slight rise in hospital costs was more than offset by a small decline in fees for professional services. Likewise, an increase in prices of prescription drugs was more than offset by a decline in prices of non-prescription drugs and supplies.

Other Categories

A 23.7 percent jump in the costs of jewelry and luggage was largely responsible for a 2.5 percent rise in prices in the apparel and upkeep category. With a quarterly gain of 1.1 percent, entertainment costs were just 1.6 percent higher than they were one year ago. The other goods and services category advanced by only a small amount for the second successive quarter.

Comparison Areas

The first quarter inflation rate in the Phoenix metropolitan area was higher than the national average, largely due to the increase in medical care costs. While the rate was also higher for transportation and for apparel and upkeep, the Phoenix area's advance in both housing and food and beverages was lower.

During the last year, the inflation rate in the Phoenix area has been greater than that of both Denver and the national average but less than that of San Diego. The Phoenix area has experienced lower inflation than each of the comparison areas in housing, entertainment, and food and beverages but has had higher inflation in medical care, transportation, and apparel and upkeep.

Outlook

While the first quarter's inflation increase was the highest in more than two years in the Phoenix area, it was not substantially higher than the increases of the second and third quarters, 1983. It is likely that the inflation rate in future quarters will slacken somewhat, since so much of the first quarter's rise was due to increases in rents and health insurance costs. Neither of these categories is likely to increase as much in coming quarters. The 5.8 percent inflation rate for all items (over one year ago) probably will remain nearly constant for at least the next two quarters, since increases in the middle quarters of 1983 were relatively large.

On a national basis, indications conflict concerning the coming inflation rate, since the rate has gradually accelerated to 4.6 percent from its low of 2.4 percent in July, 1983. History suggests that the rate may temporarily stabilize in the vicinity of 5 percent but may begin to increase late in 1984 if the economic recovery turns into an expansion.

TABLE 3
METROPOLITAN PHOENIX CONSUMER PRICE INDEX
UNITED STATES AND COMPARATIVE CITIES
FIRST QUARTER, 1984

	Percent Change from Last Quarter		*Percent Change from One Year Ago*			
Expenditure Category	*Phoenix*	*United States*	*Phoenix*	*United States*	*Denver*	*San Diego*
ALL ITEMS	1.9	1.2	5.8	4.6	4.7	6.7
Food and Beverages	1.8	3.1	3.6	4.5	5.8	8.9
Housing	0.6	1.2	3.2	3.9	3.8	6.5
Apparel and Upkeep	2.5	(2.2)	7.1	2.2	(0.4)	4.1
Transportation	1.6	(0.2)	8.2	5.5	5.1	7.3
Medical Care	11.4	2.3	20.0	6.2	6.9	4.4
Entertainment	1.1	0.8	1.6	3.5	4.4	2.2
Other Goods and Services	0.8	1.1	8.9	7.1	11.3	7.0

Source: Metropolitan Phoenix data compiled by the Bureau of Business and Economic Research, College of Business, Arizona State University, in cooperative cosponsorship with Valley National Bank; other data from U.S. Department of Labor, Bureau of Labor Statistics.